Permanently Connected: Behavior, Perception, and Their Impact on News Sharing

by

Slgi S. Lee

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Communication)
in The University of Michigan
2021

Doctoral Committee:

Professor Nojin Kwak, Chair
Professor Scott Campbell
Professor Nicole Ellison
Assistant Professor Brian Weeks

Slgi S. Lee

leesg@umich.edu

ORCID iD: 0000-0001-5525-7936

ACKNOWLEDGMENTS

First and foremost, I would like to express my deepest gratitude and respect to my advisor and the chair of my dissertation committee, Nojin Kwak. I am immensely indebted to him for his patience, guidance, and support throughout this endeavor and my time in Michigan. His guidance and mentorship profoundly influenced my growth as a scholar. I also thank him for modelling how to be an outstanding and hard-working scientist, teacher, and caring mentor.

My sincere gratitude must also go to the members of my dissertation committee, Scott Campbell, Nicole Ellison, and Brian Weeks. I thank Scott for his enthusiasm and constructive feedback on this project. I thank Nicole for her insightful comments, heartfelt advice, and pep talks on writing this dissertation. I thank Brian for the many opportunities from which I could collaborate and learn from him. This dissertation was inspired by the many interesting and exciting ideas that I came across in their graduate seminar courses. Thank you all for guiding me into the world of social media, mobile communication, and political communication. I am fortunate to have such wonderful and esteemed mentors as you.

I would like to acknowledge my collaborators and (former) members of Politics and Communication (PAC) lab, Sarah B. Fioroni, Lauren B. Hahn, Austin Hegland, Dam Hee Kim, Dan Lane, Fan Liang, Qinfeng Zhu, and Brianna Zichettella. My experience in PAC lab was cheerful and rewarding because of you.

I would also like to acknowledge my dear cohort-mates at Michigan, Sedona Chinn Stewart M. Coles, Vishnupriya (Dia) Das, Ian Hawkins, Dan Hiaeshutter-Rice, Sriram Mohan, and Emily Saidel, who have accompanied me in the journey of pursuing a Ph.D. I sincerely thank you for your support, help, and friendship.

Special thanks go to all my mentors, colleagues, and friends in the Department of Media and Communication, including but not limited to: Jan Van den Bulck, Yuchen Chen, Soobin Choi, Sonya Dal Cin, Jimmy Draper, Caitlin Dyche, Sol Hart, Adrienne Janney, Yuval Katz, Youngrim Kim, Ozan Kuru, Josh Pasek, Stuart Soroka, Edwin Wang. Every meeting, gathering, and encounter I had with you in the hallway, office, classrooms, or in coffee shop in Ann Arbor made me grow intellectually and feel part of the warm community.

I thank God for the countless blessings, knowledge, and opportunities he has given me throughout the pursuit of my Ph.D. In my time at Michigan, I have truly learned how to cast my cares on the Lord, how He will sustain me, and how He will never let the righteous be shaken (Psalm 55:22). Without the strength and comfort He has given me, I would not have been able to finish my dissertation or earn this degree.

Last and not least, my wholehearted thanks go to my parents, Jiwon Byun and Hak-Kyo Lee, and my brother, Haram Lee for their unconditional love, trust, and prayer. I also thank my partner, Young-Sung Kwon, with love for standing by my side and for encouraging and helping me get through this challenging time. I dedicate this dissertation to my family.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

The development of information and communication technology, coupled with the mass proliferation of internet-connected mobile devices, has allowed users to maintain a constant connection to the internet, introducing the era of an ever-connected or "always-on" society. Some individuals have developed the habit of being online (i.e., constantly using online content) and connected with others (i.e., constantly engaging in online social interaction) almost all the time, a phenomenon that some researchers refer to as *permanently online and permanently connected.* This dissertation focuses on the permanently connected (PC) aspect of this phenomenon, examining the psychological implications of permanent connectedness and its impact on news sharing. To this end, I utilized a two-wave panel survey and experimental data collected in the U.S.

First, drawing on previous literature, I define the behavioral and psychological dimensions of PC, namely *permanently connected behavior* (PCB), the protracted use of internet-connected media for interpersonal communication, and *permanently connected perception* (PCP), a perception of "being together" with one's online contacts in their everyday lives (i.e., permanent co-presence). I then examined whether PCB influences news sharing through PCP (i.e., the *PCP-facilitated spill-over model*).

Second, I examined the mechanism through which PCP influences news sharing—whether the relationship between PCP and news sharing is mediated by *information-sharing efficacy*, the belief that the information one shares online will instantly be received and responded to by others (i.e., the *PCP-sharing efficacy process*). I also tested whether the relationship between information-sharing efficacy and news sharing varied depending on political interest.

While the two sets of data offered somewhat conflicting results, the findings overall suggest that PCB can foster PCP, and PCP can in turn catalyze news sharing through information-sharing efficacy. This suggests the "spill-over" implications of PCB, in which perpetual interpersonal communication motivates political behavior, news sharing, and the role of PCP in mediating this process. The findings at the same time hint at the possibility that the PCP-sharing efficacy process is limited to those who are at least moderately interested in politics. This may be because individuals with higher levels of political interest have a better chance of "finding" news—for instance, by consuming information or participating in political activities online—and thus have greater opportunities to share that news with others. This suggests that political interest can be an important precondition for the spill-over process.

CHAPTER I

Introduction

Permanently Online and Permanently Connected

The extensive development of information and communication technology (ICT), coupled with the mass proliferation of internet-connected mobile devices, has allowed us to maintain a constant connection to the internet, introducing the era of an ever-connected or "always-on" society. The increased online connectivity offers individuals opportunities to connect with other users in diverse places and situations, enabling users to be online and connected to others almost all the time. Even when people are not actively using the media or intentionally devoting their attention to their smartphones, internet-connected mobile devices continue to collect incoming messages and to update status information of interest to their owners (e.g., on the weather, location, and internet-connected home appliances). Awareness that their devices are "constantly online" leads users to *internalize* the fact that their online personal sphere is constantly available to them. In short, the current media environment prompts users to experience both "the technical and mental state of truly constant mobile online connection" (Vorder & Klimmt, 2020, p. 57). Reflecting this, a group of researchers have coined the term *permanently online and permanently connected* (POPC; Vorderer, Hefner, et al., 2018; Vorderer, Kromer, et al., 2016) to describe a phenomenon in which people develop "the habit of being

online and connected with other users almost all the time" (Vorderer, Kromer, et al., 2016, p. 694).

One important implication of this phenomenon is that permanent connectivity can influence how people connect and interact with others *politically*. Scholars have shown how people use technologies to form and maintain various types of social ties (Ellison & boyd, 2013; Campbell, 2020), to interact and exchange information with others (Marwick & boyd, 2011; Vitak, 2012) and to coordinate and participate in socially meaningful events (boyd, 2010; Humphreys, 2018; Papacharissi, 2010). This suggests that permanent connectivity that is deeply embedded in our everyday lives can amplify people's abilities and opportunities to politically express themselves and share information about socially significant events. This dissertation emerges from the motivation to explore the role of permanent connectivity in influencing people's political lives, focusing on news sharing behavior. To this end, I explore the POPC phenomenon, its unique behavioral and psychological implications, and how they can influence people's news-sharing behavior.

Unpacking the Permanently Connected Phenomenon

As implied by the term, POPC consists of two related but, distinct sub-phenomena: PO and PC. PO refers to the mass communication process in which individuals constantly use online content, while PC features the interpersonal communication process through which users constantly engage in social interactions with other users. Researchers have suggested that PO and PC be treated separately to take into account the different nature of mass and interpersonal

communications and the motivations involved in each (Vorderer, Kromer, et al., 2016). In my dissertation, I focus on the PC aspect of the phenomenon.

In the current media environment, the PC phenomenon is highly important. Interpersonal communication has been considered a foundation of human interaction long before the advent of electronic media. Moreover, with the development of ICT that enables ubiquitous and real-time connectivity among individuals, interpersonal interaction has become the center and basis of various everyday practices and activities in the current media environment. For instance, the rise of social media as an important information platform, as well as economic and cultural community sites, suggests that interpersonal interaction forms an important part of everyday communication processes. Exploring PC can thus help us to understand a wide range of social and political consequences brought about by the unique use of communication technologies in the current media environment.

Despite the significance of PC, our understanding of the phenomenon is still nascent, and researchers have called for a more systematic investigation (Vorder & Klimmt, 2020; Vorderer & Kohring, 2013). As a step toward this, Vorderer and colleagues (2016), the same group of researchers who pioneered the term POPC, have offered a useful framework for understanding the PC phenomenon, considering it in terms of its *behavioral* and *psychological* aspects.

The Behavioral and Psychological Aspects of PC

According to Vorderer and colleagues (2016), PC can be defined in terms of its behavioral and psychological dimensions. The behavioral dimension involves "overt behavior in the form of protracted use of electronic media" (Vorderer, Kromer, et al., 2016, p. 695). The

phenomenon of PC, at its basic level, requires the perpetual use of online services and information technology: for users to be "permanently connected," the users must have a physical connection to their personal online sphere. The protracted use of electronic media thus offers a "technical basis" for users to be "connected to others" at all times. Drawing on this conceptualization and term (Vorderer, Kromer, et al., 2016), I refer to this behavioral dimension as *permanently connected behavior* (PCB), defined as the protracted use of internet-connected media to engage in interpersonal communication.

The other dimension of PC involves *a psychological state* through which individuals "subjectively feel" the constant availability of online communication (Vorderer, Kromer, et al., 2016). One unique characteristic of the "always-on" society is that messages (and information) are constantly being collected through users' smartphones and internet-connected mobile devices: unless they are turned off, smartphones continue to collect incoming messages even when the users are not intentionally using the device or online. Awareness that their devices are "constantly working" allows users to have a sense that online communication is always available, begetting a *mental* state of permanent connectedness (Vorder & Klimmt, 2020).

The psychological dimension—which I will refer to as PC psychology hereafter—makes PC unique and distinguishable from the traditional forms of online media use (Vorderer, Kromer, et al., 2016). However, there is some opacity to this conceptualization; no theoretical construct has yet been suggested, and no work, to my knowledge, has substantiated the existence of PC psychology. Several questions can be raised from the lack of clear conceptualization: what does PC psychology entail? What does it mean to say that users "subjectively feel" the constant

availability of online communication? The first aim of my dissertation is therefore to offer a conceptualization of PC psychology.

PCP as PC Psychology

While there has not been an explicit attempt to conceptualize PC psychology under the umbrella of the so-called POPC literature, prior literature in other fields of communications has suggested several useful concepts that could potentially explicate it. One concept that warrants our attention is *co-presence*, a perception of "being with others" (Zhao, 2003).

Scholars in computer-mediated communication (CMC) and media studies have suggested that communication technologies have reduced the perceived "distance" between physically distant interlocutors and thereby brought users an experience of socially rich and immersive interaction (e.g., Oh et al., 2018; Xu et al., 2011; Zhao, 2003; Zhao & Elesh, 2008). As mobile communication enables permanent connectivity and permits a variety of ways and opportunities to stay in constant touch with others, people may experience "connected presence" (Licoppe, 2004)—in which users feel the *presence* of physically distant others—or develop "*ambient co-presence*" (Madianou, 2016)—an intense yet peripheral awareness of knowing the daily rhythms of physically distant others. The current POPC environment increases the salience of the user's online contacts and prompts them to constantly devote their attention to potential communication from these contacts (Klimmt et al., 2018). This can engender *permanent co-presence* or a sense that users are permanently together with their online contacts.

Drawing on prior work, I thus suggest that permanent co-presence may represent one form of PC psychology. Drawing on Vorderer and colleagues' term PC (2018), I label PC

psychology *permanently connected perception* (PCP) and define PCP as a state in which users perceive *permanent co-presence* with their online contacts.

The Relationship Between PCB and PCP

While the POPC literature alludes that the behavioral (i.e., PCB) and psychological (i.e., PCP) dimensions may be related (Reinecke et al., 2018), it does not offer a sufficient account of *how* these dimensions are related. Moreover, little work has been conducted to examine the antecedents of the two dimensions. Together, this prompts the need to explore whether and, if so, how PCB and PCP are related. Drawing on the literature on co-presence (e.g., Licoppe, 2004; Madianou, 2016; Xu et al., 2011), I suggest that PCB may offer a foundation for PCP. The second aim of this dissertation is therefore to examine whether PCB influences the formation of PCP.

Understanding the Spill-Over Phenomenon

The final aim of my dissertation is to explore the political implications of PCP. Prior work on co-presence indicates that experiencing co-presence during an interaction can produce positive communicative outcomes, such as increased involvement and participation in the mediated interaction (e.g., Karaoglan Yilmaz, 2017; Lin et al., 2019; Shen & Khalifa, 2008; Xu et al., 2011). This hints at the possibility that PCP may motivate users to initiate and engage in online communication more often, promoting more frequent expressive behaviors online.

Drawing on this possibility, I suggest that PCP may be particularly effective for motivating *news-sharing* behavior. PCP may heighten the awareness that users' online contacts form an audience who are always available and responsive to the users' messages. The positive

belief that users' messages can be received and responded to instantaneously by others may motivate the user to share news or information about breaking stories or current events. I label this belief *information-sharing efficacy* and suggest that it may be a mechanism through which PCP influences news sharing. To explore the relationships between PCP, information-sharing efficacy, and news sharing, I propose two conceptual models, namely, a) the PCP-facilitated spill-over and b) the PCP-sharing efficacy process.

The PCP-Facilitated Spill-Over Model

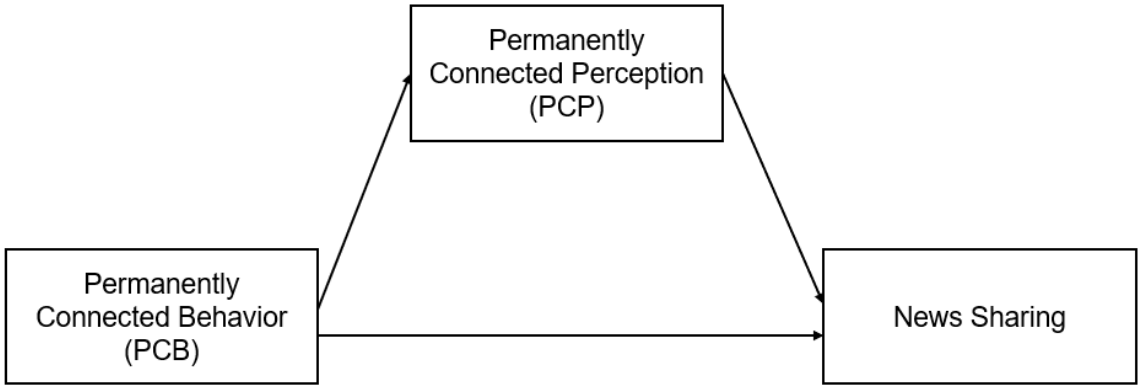
Prior research has underscored the importance of mediated social interaction in facilitating political communication and civic engagement (e.g., Humphreys, 2018; Papacharissi, 2010). Because social life and politics are often intertwined on the internet, those who use online media primarily for social purposes may become motivated to engage in political conversations and participate in politics. Studies have documented a so-called "spill-over" effect in which social or non-political use of internet-connected media leads users to come into contact with political information and engage in political activities online (Gil de Zúñiga, Molyneux, et al., 2014; Skoric et al., 2016; Yu, 2016).

Building on the "spill-over" framework, I suggest that PCB—the behavioral engagement in the perpetual interpersonal communication—may influence news sharing and that PCP may mediate this relationship. I thereby propose a model, *the PCP-facilitated spill-over*, as illustrated in Figure I.1.

By examining this model, my dissertation extends prior literature by offering empirical evidence of "the spill-over" influence of PCB in the current media environment. More

importantly, testing the model adds to the extant research by suggesting PCP as a new pathway of the spill-over process.

Figure I.1. The Conceptual Model of the PCP-Facilitated Spill-Over



The PCP-Sharing Efficacy Model

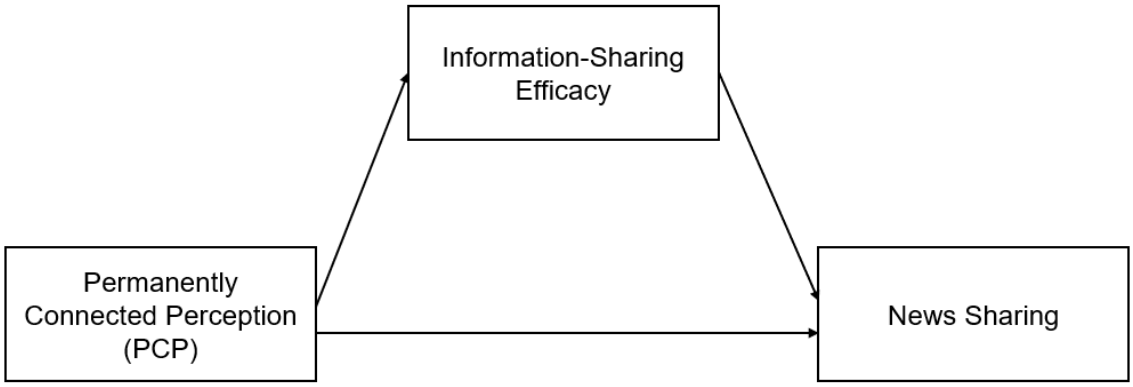
I also examine the mechanism through which PCP influences news sharing. As noted, PCP may influence news sharing through *information-sharing efficacy*, the belief that the information one shares online will instantly be received and responded to by online contacts. Drawing on prior work on CMC and political communication, I thus propose the model of the *PCP-sharing efficacy process*, in which information-sharing efficacy mediates the impact of PCP on news sharing, as illustrated in Figure I.2.

In addition, I explore whether and, if so, how *political interest* conditions the relationship between information-sharing efficacy and news sharing. Individuals differ in terms of how often they get news or how deeply they are involved with news in their everyday lives. Such a difference may lead to different levels of opportunities to share news. I use political interest to

capture such a difference, based on the view that individuals with greater political interest may encounter and get news more than do those with low political interest.

Examining the conditional influence of political interest helps to identify the circumstances under which the PCP-sharing efficacy process is more likely to occur. The findings may also suggest whether PCP selectively benefits some individuals and thus intensifies the disparity between those who are more or less interested in politics.

Figure I.2. The Conceptual Model of the PCP-Sharing Efficacy Process



To test these models, I utilize two-wave panel survey data for 454 American adults. In addition to the panel survey, I conducted an experiment (N = 270) to examine the PCP-sharing efficacy process. The combined use of panel survey and experimental data permits a more robust examination of the relationships of interest. The use of multiple methods also helps to triangulate the findings and to strengthen their generalizability and internal validity.

In the following two chapters, I review the literature on mobile communication, CMC, and media studies to a) conceptualize PCP (chapter 2) and b) discuss the causal relationship

between PCB and PCP (chapter 3). In chapter 4, I discuss how PCP may impact news sharing and explicate the PCP-facilitated spill-over. In chapter 5, I introduce information-sharing efficacy as a potential mechanism through which PCP facilitates news sharing; by doing so, I explicate the PCP-sharing efficacy process. I also discuss whether and, if so, how political interest conditions a) the political impact of information-sharing efficacy and b) the PCP-sharing efficacy process. In chapter 6, I introduce the data, variables, and procedures employed to collect the data. In chapter 7, I discuss my analyses and results. In the final chapter, I offer a summary of my findings and discuss their implications.

CHAPTER II

Permanently Connected Perception

Introduction

The advancement of wireless communication technology and the widespread adoption of internet-connected mobile devices have introduced a new era of an "always-on" society, enabling users to be connected anytime and anywhere. Vorderer and colleagues (2018) coined the term *permanently online and permanently connected* (POPC) to describe a phenomenon in which people develop "the habit of being online and connected with other users almost all the time" (p. 694). The so-called POPC literature (e.g., Reinecke et al., 2018; Vorderer, Kromer, et al., 2016, 2018) offers valuable insight into how the ubiquitous media use and permanent connectivity can shape everyday-life norms and practices of "connectedness." Yet, the literature is still nascent in terms of offering a systematic understanding of the phenomenon, particularly in terms of its sub-components, PO and PC. This leaves several areas of the POPC phenomenon unexplained.

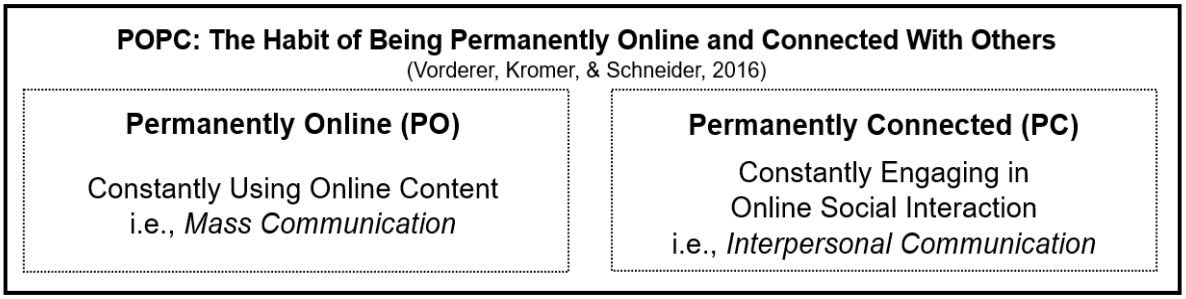
The Aims of the Present Chapter

The PC Phenomenon as the Primary Focus. According to Vorderer and colleagues (2016, 2018), POPC consists of two related but, distinct sub-phenomena: PO and PC (Figure II.1.). PC involves the mass communication process through which users constantly consume

content and information from online platforms, while PC describes the perpetual mediated interpersonal communication in which users constantly engage in social interactions with other users (Vorderer et al. 2016, 2018). Vorderer and colleagues (2016) suggest that PO and PC should be treated separately to take into account the different nature of mass and interpersonal communications and the motivations involved in each (Vorderer, Kromer, et al., 2016). However little research has yet distinguished PO from PC or vice versa when exploring their consequences. This prompts the need to explore these sub-phenomena separately. As a first step toward this, the present research focuses on the PC aspect of the phenomenon.

I focus on PC because of its significance in the current environment. Interpersonal communication has been considered a foundation of human interaction long before the advent of electronic media. Moreover, with the development of information and communications technology that enables ubiquitous and real-time connectivity among individuals, interpersonal interaction has become the center and basis of various everyday practices and activities in the current media environment. Exploring PC can thus help us to understand a wide range of social and political consequences brought about by the unique use of communication technologies in the current media environment.

Figure II.1. The Composition of POPC



Conceptualizing the Psychological Dimension of PC. In this chapter, I aim to define the composition of PC and to offer a conceptualization of these components. According to Vorderer and colleagues (2016), PC can be defined along with two dimensions, the behavioral and psychological. The behavioral dimension involves "an *overt behavior* in the form of protracted use of electronic media" to communicate with other users (p. 695). Vorderer and colleagues (2016) suggest that PC, at its basic level, requires the perpetual use of online services and information technology: for users to be "permanently connected," the users must have a physical connection to their personal online sphere. The protracted use of electronic media thus offers a "technical" basis for users to be "connected to others" at all times.

Using their conceptualization, Vorderer and colleagues (2016) explored the behavioral dimensions of PC among university students, and by doing this, they developed a measure for capturing what they dubbed *PC behavior*. In the present research, I adopt Vorderer and colleagues' approach (2016) and define the behavioral dimension of PC as the protracted use of internet-connected media to engage in interpersonal communication. Adopting these researchers' term, I label this, *permanently connected behavior* (PCB).

Another necessary component of PC is to "subjectively feel" the constant availability of online communication (i.e., the psychological dimension; Vorderer, Kromer, et al., 2016). In the smartphone era, messages (as well as missed calls and emails) are constantly being collected by the "always-turned on" internet-connected mobile devices. The collection of these messages continues even when people are not actively using the media or intentionally devoting their attention to their smartphones. The awareness that their devices are "constantly connected"—and

hence permit users to connect with others at any moment—leads users to *internalize* the fact that their online contacts are always available to them (Vorder & Klimmt, 2020).

Vorderer and colleagues (2016) suggest that this psychological component distinguishes PC from "the traditional forms of online use" (p. 695) in a way that it encourages people to *internalize* the "permanent connection to others." Examining the psychological dimension of PC may thus allow us to understand the unique implications of the current media environment that is characterized by permanent connectivity.

To embody this psychological dimension, *online vigilance* (Reinecke et al., 2018) was developed by the same group of researchers who have pioneered the so-called POPC literature. Online vigilance is defined as "users' cognitive orientation toward online content and communication as well as their [inclination] to exploit [their orientation]" (Reinecke et al., 2018, p. 2). Online vigilance consists of three dimensions through which such orientation is being manifested: a) salience—individuals who are high in this dimension intensely think about their personal online spheres, b) reactibility—users who are vigilant about their online sphere are always ready to quickly react to cues received via online communication, and c) monitoring—these users also tend to actively observe their online communication environments. Online vigilance thus reflects the degree to which users subjectively feel "the constant availability" of their *online personal sphere*, that includes both *online content* and *communication*, and the likelihood of these users constantly monitoring or reacting to what is happening in their online sphere.

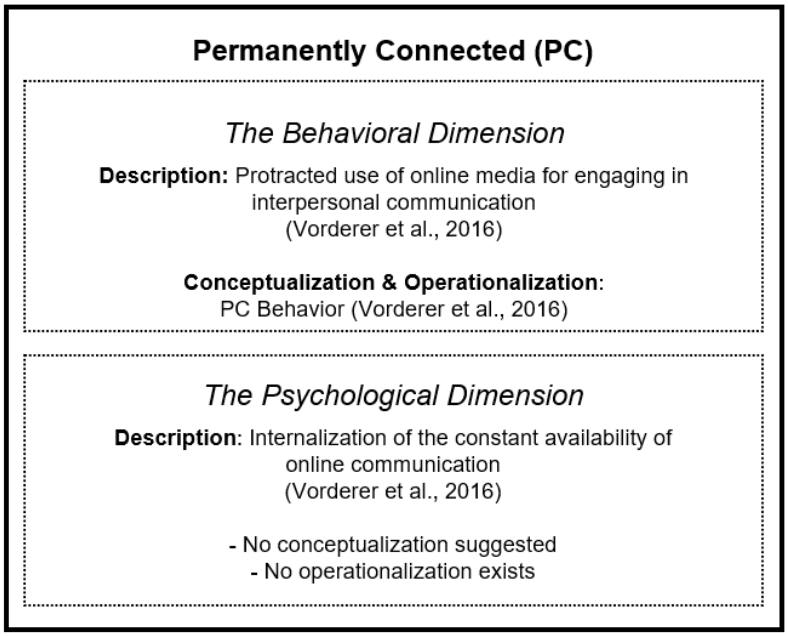
While online vigilance helps to substantiate the existence of the psychological dimension of PC—which I will refer to as PC psychology hereafter—the conceptual blurriness in

online vigilance between PO and PC makes it difficult to infer from online vigilance the unique properties of PC psychology. Moreover, the *operationalization* of online vigilance itself cannot capture PC psychology as online vigilance items (Reinecke et al., 2018) do not distinguish the interpersonal communication process from that of mass communication: the three dimensions of online vigilance noted above are operationalized in a way that treats *online content* and *communication* as a single property and thus fall short in identifying whether the given psychological orientation is targeted to users' *overall online sphere* or specifically to their communication counterparts, *online contacts*.

Several questions can be raised from this lack of clear conceptualization: how do we define PC psychology? What does PC psychology entail? What does it mean to say that users "subjectively feel" the constant availability of *online communication*? It is important that we explore these questions because, as noted, PC psychology can offer an important insight into understanding the unique implications of the PC environment as well as how PC is distinguished from the traditional forms of interpersonal communication (Vorderer, Kromer, et al., 2016). Thus, the current chapter aims to offer a conceptualization of PC psychology. The summary of PC constructs discussed above appear in Figure II.2.

In the following section, I first review prior literature in computer-mediated communication (CMC) and related fields to explore what may constitute PC psychology. I then suggest that PC psychology may be equivalent to perceptions of *permanent togetherness*. I also review previous literature on co-presence and discuss how perceptions of togetherness are related to the perception of *permanent co-presence*. Finally, I introduce permanent co-presence as a form of PC psychology and label it *permanently connected perception* (PCP).

Figure II.2. The Composition of PC: The Behavioral and Psychological Dimensions



Permanent Co-Presence and Permanently Connected Perception

Co-Presence and the Sense of Togetherness

Scholars in CMC have long been interested in the role of technologies in influencing how people form and maintain relationships. The advancement of communication technologies has offered various ways through which people can connect with others and build relationships. People not only use technologies to maintain their existing relationships (e.g., Ellison et al., 2007; Ellison & Vitak, 2015) but also to find new friends and form new relationships (Ellison & boyd, 2013). Technologies can also amplify our feeling of "being connected" with others by offering multiple ways of sensing or recognizing physically distant peers' actions and daily rhythms (Madianou, 2016). In addition, they can offer a new space in which people's social ties of various kinds can interact and exchange information (Marwick & boyd, 2011; Vitak, 2012),

enabling individuals to coordinate and participate in socially meaningful events (boyd, 2010; Papacharissi, 2010).

Of the many ways through which technologies can influence our sociality, I focus on one, that is, the way in which we perceive the *physical distance* between ourselves and others. Physical proximity—which is associated with bodily contact (tangibility) and visibility—has important implications for sociality and connectedness. Physical proximity can create an effective context in which others' presence can become socially salient. For instance, it can be easier for a person to orient their attention to their counterpart when the counterpart is within their perceptual range, allowing them to be touched, seen, and heard. Counterparts who are physically proximate can therefore be perceived as more socially salient and this can create an effective context for intimacy (e.g., Short et al., 1976).

From this perspective, face-to-face (FtoF) communication can be viewed as more effective for producing intimacy than mediated communication because interaction that occurs in a physically shared space generates a greater level of information about others (including nonverbal cues, such as facial expressions, vocal cues, and gestures) that can help individuals to perceive others' salience. However, this perspective may no longer applies. Earlier forms of mediated communication offered a limited amount of social information because they predominantly relied on text-based cues. Recent advances in technology have made mediated communication more immersive, offering a wide array of social cues, consisting of visual, audio, and even haptic components, thereby enabling interactants to reach a greater level of "perceptual proximity."

It is important to note that physical proximity however—or the conveying of rich social information—is *not* the only way through which individuals perceive others' salience, nor it is a *precondition* for sociality. People can have meaningful relationships with others without having physical contact or perceiving physical proximity. For instance, *psychological* proximity—the extent to which individuals perceive similarity in others (e.g., social identity, social norms, shared interest)—can also increase levels of salience and intimacy. In the hyperpersonal communication model, Walther (1996) suggested that people can develop positive perceptions of others via their shared identity and this can occur even in the context of physical isolation (or without nonverbal cues). Such a view was introduced as part of Walther's larger narrative (i.e., social information processing theory; SIP) that pushes back against the idea that each medium or mode of communication inherently differs in its capacity to produce intimacy (i.e., media richness theory). According to SIP theory (Walther, 1996), individuals can reach a greater level of intimacy with others, without nonverbal cues, by adapting to different media on the basis of their communication goals. Moving away from the dichotomy between FtoF and mediated communication, more contemporary work also indicates that intimacy and sociality are "socially constructed" (Fulk, 1993) and that they may not necessarily require perceptions of physical proximity (e.g., boyd, 2010, Ellison & boyd, 2013).

The focus here is on how current technology creates perceptions of "togetherness" by influencing how we perceive physical proximity to others. Recent work on social presence, for instance, has indicated that mediated interaction enables users to be immersed in their interaction, thereby generating a feeling of togetherness (e.g., Oh, Bailenson, & Welch, 2018). In light of this, I suggest that the feeling of togetherness may be closely related to PC psychology.

Before explicating my rationale for this suggestion, I first review prior work in communications and media studies to discuss several concepts that represent the feeling of "togetherness." I begin by reviewing the concept of presence.

Perceptions of Presence. Presence has been studied across various disciplines from communication, psychology, cognitive science to philosophy and arts. Because of the various backgrounds from which the scholarship is derived, the definition of presence is somewhat "fragmentary and unsystematic" (Lombard & Ditton, 1997). In "Presence Explicated," Lee (2004) introduces a variation of definitions of presence offered by previous scholars:

> Steuer (1992) defined presence as "the extent to which one feels present in the mediated environment, rather than in the immediate physical environment" (p. 76). Similarly, Witmer and Singer (1998) referred to it as "the subjective experience of being in one place or environment, even when one is physically situated in another" (p. 225) […] Biocca (1997) traced the origin of the term and concluded that presence has been generalized to the illusion of "being there" whether or not "there" exists in physical space. […] Lombard and his colleagues defined presence as "the perceptual illusion of nonmediation" (Lombard & Ditton, 1997; Lombard et al., 2000, p.77).

By "illusion of nonmediation," these researchers refer to the state whereby "a person fails to perceive or acknowledge the existence of a medium in his or her communication environment and responds as he or she would if the medium were not there" (Lombard & Ditton, 1997). Rejecting the negative connotation the term "failure" or "illusion" elicits—that the experience of presence is somewhat undesirable—Lee (2004) redefined presence as "a psychological state in which the virtuality of experience is *unnoticed*" (p. 32).

Drawing on definition offered by International Society for Presence Research, Lombard and colleagues (2017) defined presence, "a psychological state or subjective perception in which even though part or all of an individual's current experience is generated by and/or filtered through human-made technology, part or all of the individual's perception fails to accurately acknowledge the role of the technology in the experience […] at some level and to some degree her/his perceptions overlook that knowledge and objects, events, entities, and environments are perceived as if the technology was not involved in the experience (International Society for Presence Research, 2000)" (Lombard et al., 2017, p. 169).

In their earlier work, Lombard and Ditton (1997) described presence, shortened from telepresence, as transportation that leads to the perception of "we are together" and the state whereby "two or more communicators are transported together to a place that they share" by using communication media. To substantiate this definition, Lombard and Ditton (1997) introduce an early CMC work that have used a similar conceptualization: Muhlbach and colleagues (1996) examined how technical features of a video conferencing application increased perceptions of telepresence and satisfaction of the interaction on that site. These researchers used *co-presence* to conceptualize and operationalize the presence. In their study, presence was defined as "the degree to which participants of a tele-meeting get the impression of sharing space with interlocutors who are at a remote physical site" and was measured using items such as "It was as if we were all in the same room" and "It was like a real face-to-face meeting" (p. 301).

Together, these researchers suggest that presence can be viewed as a psychological state in which people do not "notice" or perceive physical distance between themselves and their

communication counterpart. Such a state closely represents perceptions that the users and their counterparts are together in *a shared virtual space*.

Perceptions of Co-presence. The idea of co-location or the perception of "we are together in a shared space" is the very concept some communication scholars have used in their study of *co-presence*. Like presence, there has not been an established conceptualization or operationalization of co-presence. Co-presence has been discussed in relation to perceptions of *presence* and *social presence*. First, some scholars have used co-presence and social presence interchangeably, referring them as the "sense of being with another (Biocca et al., 2003, p. 456) As noted above, Lombard and Ditton (1997) conceptualized presence as transportation that leads to the perception of "we are together" and introduced an operationalization that relies on notions of "co-location." This suggests that there is a conceptual overlap between presence and co-presence.

In a recent work, Lombard and colleagues (2017) introduce co-presence as a sub-level of *social presence*—a state "in which mediated actual or artificial social entities are perceived as being present" (2017, p. 169)—and indicate that co-presence is the lowest level of social presence whereby people "detect and be aware that communication counterparts exist and are present" (p. 174).

This is similar to others' view who consider co-presence as a sub-dimension of social presence, though these researchers adopt a different definition of social presence. Biocca (1997) suggests that social presence refers to "the subjective experience of being present with a "real" person and having access to his or her thoughts and emotions" (Oh et al., 2018, p. 2). For a user to experience social presence, the user needs to perceive a) intimacy—feeling the

"connectedness" between communicators," and b) immediacy—perceiving psychological proximity between the communicators during an interaction (Short et al., 1976). Adopting this view on social presence, McLeod and colleagues (1997) suggested that co-presence can be viewed as a component of social presence, that helps users to perceive *immediacy* in their mediated interaction. These researchers define co-presence as "the degree of tangibility and proximity of other people that one perceives in a communication situation" (McLeod et al., 1997, p. 708).

Another group of researchers proposes a more nuanced conceptualization of co-presence, suggesting that co-presence is more than perceptions of co-locatedness. Drawing on Goffman (1966) and Giddens's theories of human interaction (1984), Zhao and Elesh (2008) contended that co-presence transcends co-location—"being within perceptual range of each other" or "being in"—and involves a social relationship whereby people are mutually oriented toward each other. They termed this "being *with*" others (p. 570). Co-presence thereby reflects "mutual togetherness" in which people are "reciprocally oriented toward each other, mutually available and accessible to each other, tuned in to and in touch with each other" (p. 571). In other words, in being co-present or "being with" others, people are not only in close proximity but also are mutually oriented toward each other (Goffman, 1966; Zhao & Elesh, 2008).

Adopting Zhao and Elesh (2008)'s conceptualization of co-presence, Xu et al. (2011) defines co-presence as "communicator's perception of being with others through media" (p. 993). They suggested that co-presence goes beyond transportation or social presence that are characterized by tangibility and proximity and concluded that co-presence not only includes

awareness of others' presence but also "connectedness—the feeling of being *with* others" (p. 993).

Together, prior research indicates that co-presence embodies *a feeling of togetherness*, the concept which I have suggested above as the potential PC psychology. While there is no clear and universal conceptualization and operationalization of co-presence, prior research has suggested several useful concepts that can explicate co-presence. Following prior work discussed above, I define co-presence along with three dimensions: a) perceiving the presence of others, b) a sense of "being together," and c) a sense of having face-to-face communication (i.e., perceptions of non-mediation, the immediacy component of social presence).

Co-presence in the POPC Environment

It is important to note that most of the literature reviewed above limits the experience of co-presence to when the user is *on* the media. In other words, perceptions of co-presence are likely to disappear when users are not using the media or when the mediation is over. Recent work on CMC and POPC suggests that users in the current media environment may experience *permanent* co-presence: the increased connectivity and habitual use of media may lead individuals to experience co-presence throughout their day, even when they are not using electronic media, talking, or messaging on their phones. Based on this view, I suggest that *permanent co-presence* may explicate PC psychology. In the following section, I review prior work that forms a basis of my suggestion.

Connected Presence. Prior work has suggested that mobile communication has led to the formation of new norms and expectations for social connectedness (e.g., Bayer et al., 2015). Licoppe's notion of *connected presence* (2004) suggests that physically distant others become

present in people's daily lives through a mobile connection. The portability of mobile devices introduced new practices for relational maintenance: short, multiple calls are made throughout the day. Licoppe (2004) suggested that the continuous flow of the mediated interactions on mobile phones "help to maintain *the feeling of a permanent connection*, an impression that the link can be activated at any time and that one can thus experience the others' engagement in the relationship at any time" (p.141). In other words, the increased availability, or the expectation that we can connect with others anytime and anywhere has allowed people to perceive others' presence in their daily lives.

Ambient Co-presence. Building on the notion of connected presence, Madianou (2016) proposed an advanced form of co-presence, *ambient co-presence*, and discussed how users develop "peripheral, yet intense [awareness] of the actions and daily rhythms [of their social contacts]" (p. 183). The current media environment offers multiple modes of maintaining relationships with close-tie contacts, by enabling both synchronous and asynchronous means of interactions: synchronous communication, such as calling, texting, and instant messaging, offers *connected presence* (Licoppe, 2004), while asynchronous communication can engender "co-presence by proxy" (Madianou, 2016). A proxy refers to any type of visual content one can retrieve from mediated interactions, such as the photos, videos, or status updates of others. These proxies serve as visual cues that enhance awareness of physically distant others' day-to-day activities and thereby induce *ambient co-presence*, or the feeling of knowing every moment of others' lives (Madianou, 2016). Madianou's account (2016) of ambient co-presence offers useful insight into how the current media environment engenders ambient perceptions of co-presence that is maintained throughout people's daily lives.

Permanent Co-presence and Permanently Connected Perception. Klimmt and colleagues (2018) also suggested that perceptions of co-presence may be experienced permanently. In their article on the "POPC mindset," the psychological state of users with the POPC tendency, these researchers explained the three components of online vigilance—salience, reactibility, monitoring. In their review of *salience*, they discuss how the salience of uses' personal online sphere—that is, thinking intensively about one's online sphere—can increase the compulsion to use mobile devices.

For instance, one study examined the phenomenon termed *Fear of Missing Out* (FoMO), defined as "a pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski et al., 2013, p. 1841). FoMO reflects fear that a person would miss events and information that are perceived to be important to oneself. People who are high in FoMO may therefore rely on social media more, as social media permit access to various events occurring in users' social sphere, including information about their social contacts. Przybylski and colleagues (2013) thus suggested that FoMO manifests "[users'] desire to stay continually connected with what others are doing" (p. 1841) and found that those who are susceptible to FoMO tend to use social media more often in general as well as in particular times of the day, such as immediately after waking, before going to sleep, and during meals. These individuals were also more likely to use social media during their university lectures and engage in texting and emailing while driving (Przybylski et al., 2013).

A different study examined the psychological state when people do not have their mobile phones with them (Cheever et al., 2014). This study found that participants whose mobile phones were taken away remained anxious throughout the experiment, suggesting that these

individuals have constantly thought about what is happening in their online sphere and felt fear of missing any potential communication incidents.

The findings of the two studies suggest that a) mobile users in general hold a tendency to constantly think about their online sphere, b) users with such a tendency are inclined to use mobile devices in various settings, often simultaneously being engaged in physical activities (e.g., while driving or in a classroom) and c) the *salience* of users' online personal sphere can be maintained even in the absence of a physical online connection.

Klimmt and colleagues (2018) further suggested that when users perceive the salience of their online sphere, he or she may perceive their online sphere as if it is "an additional, invisible layer of their reality in any offline setting" (p. 20). This is because these users constantly devote parts of their thinking into what is going on in their online sphere, even when they should be concentrating on the offline situation (e.g., attending a lecture, driving a motorcycle).

In sum, prior work reviewed above indicates that users in the POPC environment may experience co-presence *permanently*. I therefore suggest that *permanent co-presence* can adequately embody PC psychology or psychological dimension of the PC phenomenon. Drawing on the term, POPC (Vorderer, Hefner, et al., 2018), I term PC psychology as *permanently connected perception* (PCP) defined as a psychological state in which users perceive *permanent co-presence* with their online contacts.

Overall, drawing on Vorderer and colleagues' framework on PC (2018), I suggest that, in the current media environment, people can develop "permanent connectedness" to their online contacts. The permanent connectedness can be viewed in terms of two dimensions; users are inclined to permanently interact with others (the behavioral) but also perceive that their online

contacts are permanently with them (i.e., permanent co-presence; the psychological). The perception of permanent *co-presence* or togetherness offers a basis for users to "feel" or internalize the permanent availability of online communication, a core component of PC that has been suggested by Vorderer and colleagues (2016, 2020).

CHAPTER III

Permanently Connected Perception and Permanently Connected Behavior

The Behavioral and Psychological Dimensions of PC

The literature on the *permanently online and permanently connected* (POPC) phenomenon offers important insight into understanding the implications of permanent connectivity and the "always-on" society. As noted, the literature is still nascent and there are several areas that need to be unpacked. Such areas involve 1) exploring the unique implications of the sub-phenomena, PO and PC, and 2) defining the two dimensions of each sub-phenomena, namely a) behavioral and b) psychological.

Another area that warrants exploration is the *relationship* between the two dimensions. While the POPC literature assumes that the psychological and behavioral dimensions are related (Reinecke et al., 2018), it falls short in explicating *how* they are related. Moreover, little work has been conducted to examine the antecedents of the two dimensions. To fill this gap in the literature, I intend to examine the causal relationship between the behavioral and psychological dimensions, focusing on PC.

Drawing on Vorderer and colleagues (2016), I define the behavioral dimension of PC as the protracted use of internet-connected media to engage in interpersonal communication and label *permanently connected behavior* (PCB). In the previous chapter, I have suggested that the

psychological dimension of PC can be explicated via *permanently connected perception* (PCP), defined as a psychological state in which users perceive *permanent co-presence* with their online contacts.

Prior work in computer-mediated communication (CMC) and media studies hints at the possibility that PCB and PCP may be causally related. To explicate this in detail, I first review predictors of co-presence. I also discuss how the current media environment offers an effective context for engendering PCP. I then explicate how PCP may be derived from PCB and introduce a hypothesis regarding the relationship between PCB and PCP.

The Relationship Between PCB and PCP

Mediated Interaction and PCP

Technology and Perceptions of Presence. Research has indicated that offering rich social information in mediated interaction, such as immediate feedback, visual representation, and high audio quality, can increase perceptions of presence (see Oh et al., 2018, for a summary of predictors of presence). This is based on a classic view in computer-mediated communication (CMC) suggesting that rich social cues—which include nonverbal cues, such as facial expressions, vocal cues, gestures, and physical appearance—can make mediated interaction more vivid, salient, and socially immersive (Biocca, 1997; Short et al., 1976). Contemporary media technologies have enabled individuals to use a variety of cues, consisting visual, audio, and even haptic components, and have made communication more immersive. This has created an effective context for experiencing co-presence in mediated interaction (Oh et al., 2018).

While technological features and modality of interaction play an important part in engendering presence, they are not the sole determinant of presence. Recent studies have shown that individual traits and contextual differences also influence presence (see Oh et al., 2018, for a detailed review). This suggests that perceptions of presence may not necessarily be influenced by the number of cues a particular medium conveys but instead depend on users' abilities or motivations for using media.

This view is supported by social information processing (SIP) theory (Walther, 1992), according to which a particular mode of interaction that offers fewer nonverbal cues (e.g., text-based CMC) can produce the *same* level of intimacy as a mode that produces more social cues (e.g., face-to-face (FtoF) communication). It may however take more time for the former to achieve the same level of intimacy because the text-based CMC, for instance, is limited in the "bandwidth" in which social information is relayed (e.g., typing and reading in text-based CMC take more time than speaking and looking in FtoF communication).

Walther (1996) further suggested that the limited cues can, in some cases, help communicators to reach a stronger sense of intimacy because the time delay in composing messages can allow more time for users to select and carefully present their preferred characteristics (i.e., the hyperpersonal communication model). This means that the limited social cues themselves are not a hindrance to presence and that user agency and the context in which social information is conveyed play an important role in producing presence. On the basis of the perspectives discussed above, which highlight the importance of technical and individual factors in producing presence, I adopt an "affordances" approach to explicate the relationship between technology use and perceived co-presence.

Affordances. According to Evans and colleagues (2017), affordance is defined as the "multifaceted relational structure between an object/technology and the user that enables or constrains potential behavioral outcomes in a particular context" (p. 36). Researchers have used affordances to understand the dynamic relationship between communication technologies, users/interactants, and the socio-cultural contexts in which they operate (Davis & Chouinard, 2016) as well as the ways in which this relationship influences the outcome of technology use.

The affordances approach pays attention to the ways in which "users' subjective assessment, abilities, practices, and so on facilitate or restrain possible outcomes" (Kim & Ellison, 2021, p.3). At the same time, it acknowledges the role of technologies in constructing the "possible outcomes" by requesting, demanding, allowing, encouraging, discouraging, or refusing certain user actions (Davis & Chouinard, 2017). By doing so, the affordances approach moves away from a technologically deterministic view and toward a social constructivist perspective that emphasizes the importance of user agency in influencing technology use and its outcome (Nagy & Neff, 2015).

The POPC Environment, PCB, and Their Influence on PCP

The current media environment offers a wide array of affordances for connecting with others, providing a rich "texture" for personal communication (Harper, 2010; Madianou, 2016). Moreover, the widespread adoption of internet-connected mobile devices enables communications to take place almost anywhere and anytime. In this POPC environment, individuals are more likely to develop PCP because multiple modes of mediated interaction afforded by a permanent connection create ample opportunities to experience co-presence.

The Synchronicity of Interaction. Synchronous modes of interaction, such as calling, texting, and instant messaging, enable communicators to exchange instant reactions or feedback. Studies have shown that frequent and protracted use of media that afford synchronous interaction can increase co-presence. Xu et al. (2011) found that individuals who have used an instant messenger a) more frequently per day and b) for a longer time period were more likely to experience co-presence with others on that medium. These researchers suggested that users' prior experience with the medium can increase their familiarity with the technical features of that medium. The more people become familiar with the features, the better they can "exploit" the features. This can lead to "maximizing the experience of co-presence allowed by the medium" (Xu et al., 2011, p. 997).

Licoppe (2004) has also suggested that short and synchronous modes of mobile communication can help users to develop "connected co-presence" in which the users feel "a permanent connection," and to form "an impression that the link can be activated at any time and that one can thus experience the others' engagement in the relationship at any time" (p. 141). Others have examined how technical features of a video conferencing application increase perceptions of co-presence and reported that the enhanced audio and visual component of the video conference meeting increases perceptions of co-presence (Muhlbach et al., 1996).

Visibility and Persistence of Communication Incident. Asynchronous communication also plays an important role in inducing co-presence. Madianou (2016) suggested that in a "polymedia environment" in which people engage in various modes of interpersonal interactions, users may develop *ambient co-presence* or a sense of knowing the "actions and daily rhythms" of their physically distant peers (Madianou, 2016, p. 182). In her article, she discusses the

importance of what she calls "co-presence by proxy." A proxy refers to any type of visual content that one can retrieve from mediated interactions, such as the photos, videos, or status updates of others. These proxies serve as *visual cues* that enhance the awareness of peers' day-to-day activities (Madianou, 2016).

For example, on social media, the daily lives of social media friends are constantly *visible* because their activities are "streamed" on a real-time basis (e.g., Ellison & Vitak, 2015). Communication threads or "news feeds" on social media play a repository role in cataloging and updating communication incidents, making the proceedings of one's communication *persistently* visible and accessible. Moreover, instant messaging applications allow users to view the online or offline status of their contacts as well as the time when these contacts were last active on the platforms. Madianou (2016) suggested that the constant exposure to these proxies engenders "the peripheral, yet intense awareness of distant others" (p. 183). This also alludes to the possibility that proxies may heighten the *salience* of the users' online contacts.

PCB and Salience of Online Contacts. Frequent mediated communication can increase the salience of user's online contacts (Klimmt et al., 2018). To explicate the psychological dimension of POPC, Klimmt and colleagues (2018) introduced three components of *online vigilance*. As noted in the previous chapter, online vigilance (Reinecke et al., 2018) is defined as "users' cognitive orientation toward online content and communication" (Reinecke et al., 2018, p. 2) and consists of three dimensions through which such orientation is being manifested: salience, reactibility, and monitoring. In their review of *salience*, Klimmt and colleagues (2018) discussed how the salience of personal online spheres—that is, thinking intensively about one's online sphere—may be more prevalent among the heavy users of mobile media.

For instance, one study examined whether restricting people's online connection makes people more anxious over time (Cheever et al., 2014). The study found that only participants who use their mobile phones more often during their typical day became more anxious (Cheever et al., 2014). This suggests that the salience dimension may be more prevalent among heavy smartphone users and that these heavy users are in general inclined to think about their personal contacts even in the absence of a physical online connection (Klimmt et al., 2018).

Users whose online social network is permanently *salient* may perceive that their online contacts are always available for communication (Klimmt et al., 2018). These users may also perceive that their online contacts are located in close proximity. Put differently, these users may perceive co-presence with their online contacts. Overall, this suggests that PCB may increase the salience of users' online contacts and thereby foster PCP. In line with this set of considerations, I posit that PCB will be positively associated with the development of PCP. To test the relationship between PCB and PCP, the following was hypothesized:

H1: PCB will be positively associated with the formation of PCP over time.

I have so far discussed that PCP may equate to *permanent co-presence* (Chapter 2) and that PCB may develop PCP (Chapter 3). In the following chapter, I discuss the political implications of PCP. Prior work on co-presence indicates that experiencing co-presence during an interaction can produce positive communicative outcomes, such as increasing involvement and participation in the mediated interaction (e.g., Karaoglan Yilmaz, 2017; Lin et al., 2019; Shen & Khalifa, 2008; Xu et al., 2011). This hints at the possibility that PCP may motivate users

to initiate and engage in online communication more often, promoting more frequent expressive behaviors online.

More importantly, PCP may motivate *news sharing*. News sharing can be viewed as a form of communicative behavior that is acted upon the expectation that the news sent would be *immediate received* by others. As discussed, an individual with greater PCP may perceive permanent co-presence or permanently "being together with" their online contacts. The perceived permanent togetherness may allow the individuals to expect their messages will be promptly received by others. PCP thus may motivate news sharing.

As discussed, PCB may foster PCP. I suggest that PCP, in turn, may motivate news sharing. In the following chapter, I discuss the overall process through which PCP may influence news sharing, namely, *the PCP-facilitated spill-over*.

CHAPTER IV

The PCP-Facilitated Spill-Over

Online news sharing—defined here as sharing and posting of information about current events related to politics and social issues—has important implications for democracy. News sharing has been considered as an expressive form of online political participation (e.g., Gil de Zúñiga, Jung, et al., 2012) and is known to encourage offline participation (Boulianne 2015; Kwak et al. 2018; Skoric et al., 2016). Research also suggests that sharing news and political information can enhance the sharers' political self-concepts (i.e., political interest, political self-efficacy, and perceived participation), motivating the sharers to view themselves as politically engaged citizens and forming a foundation for prolonged participation in politics (Lane et al. 2019).

Understanding what motivates people to share news thus forms an important research area that has significant implications for promoting democratic practices and informed citizenry. Prior work has identified several determining factors of news-sharing behavior, such as motivation, characteristics, and social context of shares, or message factors of the news being shared (see Kümpel et al., 2015 for an extensive review). A range of theoretical frameworks have been used to examine these predictors (e.g., Cappella et al., 2015; Lee & Ma, 2012; Kim et al.,

2020; Ma et al., 2014), from the uses and gratifications (Rubin & Perse, 1987) to diffusion of innovation (Rogers, 2003), and attitudinal selectivity (e.g., Festinger, 1957).

The current research draws on "the spill-over" framework (Humphreys, 2018; Papacharissi, 2010) to examine a motivator of news sharing. The spill-over framework posits that mundane, everyday mediated social interaction can lead to political engagement. This line of research highlights the importance of the structural feature of the internet that blurs the boundary between users' private and public spheres and thereby allows online social activities to "spill over" to public domains.

As noted in the earlier chapter, the widespread adoption of internet-connected mobile devices has led individuals to develop a habit of being online and connected with others almost all the time. Some scholars have referred to such a phenomenon as *permanently online permanently connected* (POPC; Vorderer, Hefner, et al., 2018). In the POPC environment, users may develop what I label *permanently connected perception* (PCP), a perception that users' online contacts are permanently co-present with them.

One important implication of PCP is that PCP may provide a useful framework for understanding the spill-over process. As discussed in the previous chapter, PCP is defined as permanent *co-presence* or a feeling of "being together" with one's online contacts. Individuals with higher PCP may be more likely to share news, as PCP may allow these users to be *confident* that the news they share would be received promptly as it is shared. I thus propose PCP as a new predictor of news sharing and suggest that PCP forms a new pathway of the spill-over process. Before I explicate this process in detail, I first review previous literature on the spill-over process

and discuss several pathways through which the spill-over can occur. I then explain my rationale for why I suggest PCP as a new pathway of the spill-over.

The Spill-Over

Prior work in political communication has underscored the importance of the internet and electronic media in facilitating political participation. It has been traditionally considered that political activities online are predominantly derived from "political uses" of the internet. For instance, past studies found that the informational use of the internet—i.e., using the internet to seek and obtain information—was positively linked to political participation (e.g., Gil de Zúñiga, Jung, et al., 2012; Shah, Cho, et al., 2005), while social and recreational uses—consuming entertainment and participating in social activities, such as chatting or game-playing—had negligible or even negative impacts on civic engagement (e.g., Shah, Kwak, et al., 2001).

Drawing on the uses and gratification theory, this line of work has suggested that media effects can vary depending on *how* people use the media and motivations involved in their uses. These studies also highlight distinct natures of *political* and *social uses* of the internet and suggest that there are clear boundaries between users' private and public spheres.

One problem with this so-called "contrast model" (Yu, 2016) is that it underestimates the prevalence and importance of *non-political* or *social* uses of media in facilitating political interactions. More importantly, the contrast model falls short in explicating the role of permanent connectivity the current media environment offers. As discussed, the current POPC environment allows users to connect with their online contacts almost all the time by offering affordances for seamless and synchronous communication anytime and anywhere. Given that permanent

connectivity is deeply embedded in our daily lives, it is important that we understand whether everyday use of digital media or *permanently connected behavior* (PCB) influences people's political engagement.

In the previous chapter, I have conceptualized PCB as the behavioral dimension of the PC phenomenon (Vorderer, Kromer, et al., 2016)—a phenomenon in which people develop a habit of "being permanently connected to others"—defined as the protracted use of internet-connected media to engage in interpersonal communication. Following Vorderer and colleagues' view (2016, 2018), I posit that PCB embodies the everyday use of media in the current POPC environment. The present research therefore pays attention to how *PCB* may influence people's political interaction.

To examine the political implications of PCB, I adopt a theoretical framework that draws on the so-called "the spill-over" literature (Gil de Zúñiga, Molyneux, et al., 2014; Humphreys, 2018; Papacharissi, 2010; Yu, 2016). This line of research conceptualizes political life as "an extended terrain of everyday life" and suggests that mundane mediated social activities can bring "citizens into contact with the political realm" (Yu, 2016, p. 414).

Ample work has offered evidence for the spill-over. Gil de Zúñiga and colleagues (2014) found that using social media for relational and social purposes were positively related to political information sharing and political expression, which were consequently associated with political participation. Drawing on the theoretical distinctions between non-political and political uses as well as active and passive uses of social media, Yu (2016) found that active engagement with non-political content on social media—i.e., posting, sharing, liking, or commenting on entertainment and personal-life content—was positively associated with political expression.

These findings on the spill-over is echoed by Skoric and colleges' meta-analysis on the 22 existing studies (2016), which suggested that social media use in general was positively related to civic engagement and political participation. Together, the literature suggests the "spill-over implications" of the mediate social interaction, whereby mundane online activities of everyday life can lead to political engagement.

Pathways of the Spill-Over

Previous literature has suggested several ways through which the spill-over can occur. First, scholars have highlighted *context collapse* of mediated (online) spaces (Papacharissi, 2010; Vitak, 2012) in the spill-over process. On the internet, users' various social spheres are collapsed into one single context. The context collapse of the online environment enables users to build and maintain social ties across private, public, and semi-public spheres and come into contact with diverse information and content (Campbell, 2020).

For instance, social media enable various kinds of information to be disseminated across a wide range of users, leading users to stumble upon political information that is shared by the users' social contacts (e.g., Wojcieszak & Mutz, 2009). Past research indicates that such incidental exposure has the potential to motivate news sharing. For instance, Valeriani and Vaccari (2016) found that incidental exposure to political information on social media was positively associated with online participation and that such a pattern existed across multiple countries. Similarly, Weeks and colleagues (2017) found that incidental exposure can lead people to seek political information which can subsequently lead them to share political information more often.

Second, frequent mediated communication can shape attitudes toward and perceptions of users' online network, thereby creating a salutary context for sharing political information and opinions. For instance, as sharing mundane and everyday lives become routinized, users become more comfortable with sharing more sensitive or controversial information online (Swigger, 2012). This suggests that frequent social interactions may encourage expression beyond domains of personal and private matters, thereby motivate sharing of political information (Morey et al., 2012).

Moreover, frequent online interaction strengthens relationships between social ties (Burke & Kraut, 2014; Ellison et al., 2007) as people develop feelings of closeness and intimacy (Chamber, 2013). Furthermore, learning about others through everyday exchanges can help reduce uncertainty about their intentions and behaviors (Berger & Calabrese, 1975), which can serve as a basis for developing a sense of trust (Valenzuela et al., 2009). Others have suggested that mundane online interactions with other users can cultivate collective identity (Bakardjieva, 2009), which can grow into a commitment toward one's network. Relationships that are built upon intimacy, trust, and solidarity can in turn encourage individuals to share more communal and high-stakes topics such as recent news about government policy or controversial social issues.

Overall, prior literature has suggested that online mediated interactions can lead to greater engagement in news as social interactions in everyday lives offer motivation and opportunities to share news. This suggests that PCB may lead to greater engagement in news and political information. Yet, little work has empirically examined this relationship. I therefore explore

whether PCB positively impacts news sharing. In line with spill-over literature discussed above, the following was hypothesized:

H2: PCB will be positively associated with news sharing.

The PCP-Facilitated Spill-Over Model

In addition to the spill-over pathways discussed above, I suggest that PCP may serve as a new pathway of the spill-over. I suggest that PCP may have positive communicative implications because the perception that the users' online contacts are always "available" and accessible to communicate with can encourage the users to initiate and engage in online communication more often. Among many forms of communication, I predict that PCP may be particularly effective in motivating *news sharing*. Drawing on prior research, I discuss several reasons why I predict so.

PCP and News Sharing

Perceptions of Presence and Information Sharing. Prior literature suggests that perceptions of presence—that is, a psychological state in which one perceives their mediated interaction as nonmedicated (Lombard et al., 2017)—can increase user's involvement in the mediated environment. This is because the perception of non-mediation—a state whereby users do not recognize that their communication is being mediated—can increase the perceptual proximity between the user and their interlocutors, thereby permitting an experience of socially rich, real, and immersive mediated interaction (Oh et al., 2018).

Researchers have also found that *co-presence*—a feeling of "being together" with others (Zhao & Elesh, 2008)—can increase user participation across various settings. Xu and colleagues

(2011) found that co-presence with other users on an instant messenger was positively related to intention to continuously use the application. Shen and Khalifa (2008) studied an online discussion forum and found that users who reported higher levels of co-presence showed greater participation in the forum. This suggests that a virtual environment that engenders a high level of co-presence can be effective in motivating greater user engagement.

Relatedly, studies suggest that perceptions of co-presence are important predictors of knowledge and information sharing. Co-presence was found to influence knowledge-sharing behaviors in an online community on social media (Karaoglan Yilmaz, 2017). Lin and colleagues (2019) also found that users who perceived other users as more real and vivid on social media were more likely to hold a positive attitude toward information-sharing behavior and willing to post and share their knowledge and information. Given that PCP may equate to permanent *co-presence*, the extant research above hints at the possibility that individuals with a high level of PCP may be more likely to share news, as news sharing serves the role of information and knowledge exchange.

News Sharing as Relationship Maintenance. The second reason why PCP may be related to news sharing is that news-sharing can serve the role of relationship maintenance. Prior work suggested that news serves as good material for spurring social interactions within an online social network. For instance, using focus group interviews of mobile news users, Goh and colleagues (2017) found that people tend to think about how sharing specific news would affect their relationships and share news that benefits their relationships. Others also suggest that news sharing is a strategic behavior guided by interpersonal goals. Drawing from surveys of online news users, Ihm and Kim (2018) found that news sharing was observed among users with higher

self-presentation motivation and that users were more likely to share news that they consider fit the interest of their online network. News-sharing is therefore more than informational exchange and can serve the role of relationship maintenance.

Given that PCP is a perception of permanent togetherness, individuals with greater PCP may have greater relational motivation: this is because those with greater PCP may think about their online network perpetually (Klimmt et al., 2018; see Chapter 2 and 3 for more detail). This hints at the possibility that individuals with higher PCP may have greater motivation for socializing with other users.

Individuals with greater motivation for socializing with others may be more likely to share information that they think would fit the interest of others (e.g., Cappella et al., 2015; Ihm & Kim, 2018). Given that news by its nature concerns information of public interest, news may seem like useful information, something that is worth to share by people with interpersonal motivation (Goh et al., 2017). Put differently, news sharing may be observed more often among users with higher PCP who may have greater motivation for socializing with others.

News Sharing and Immediacy. As noted, the current research defines news as information about current events related to politics and social issues. This suggests that news events are a) recent (i.e., current events) and b) of public interest (i.e., politics and social issues). Because news involves recent events or time-sensitive information that are socially important, news should be delivered to users as promptly as possible. When news could not be delivered instantly, the *informational value* of that news would be significantly reduced.

For instance, consider that there is new legislation that imposes a fee for using plastic bags in stores. The news about this legislation would be most useful when it is shared promptly

as possible. If a user gets this news too late, such as after the law comes into effect, the news may be of little use, because the user would not be able to consider his or her options in acting in response to the law in advance (e.g., bringing their non-disposable bag the next time they go to a store). Similarly, breaking news that reports a break-out of a political rally will be more valuable when that news is delivered to users as instantly as possible, especially to those who want to participate in the event or closely follow its turnout. As illustrated in these examples, the informational value of news may depend on whether that news is shared as promptly as it is produced. I suggest that this *pressure for immediacy* implied by the nature of news itself may be one reason why PCP would motivate news sharing.

Past research has suggested the perceived utility is an important predictor of news sharing (Rudat et al., 2014). Cappella and colleagues (2015) also suggested that news-sharing intention may depend on users' judgment of whether specific news is useful to the recipient. Because PCP entails the belief that the user's social network is "always accessible," it may also lead to the view that what the user shares will always be received and responded to in a timely manner. This belief, which I will refer to as *information-sharing efficacy* hereafter, may play an important role in how PCP may influence new sharing. Individuals with higher PCP may therefore perceive greater utility in news overall, because of the *instant receptivity* these individuals would perceive in news.

Based on this set of considerations, I suggest that PCP may influence news sharing. With the information-sharing efficacy serving as a key mechanism, PCP may increase the likelihood of a user broadcasting of public events (e.g., via sharing photos or videos) or sharing of

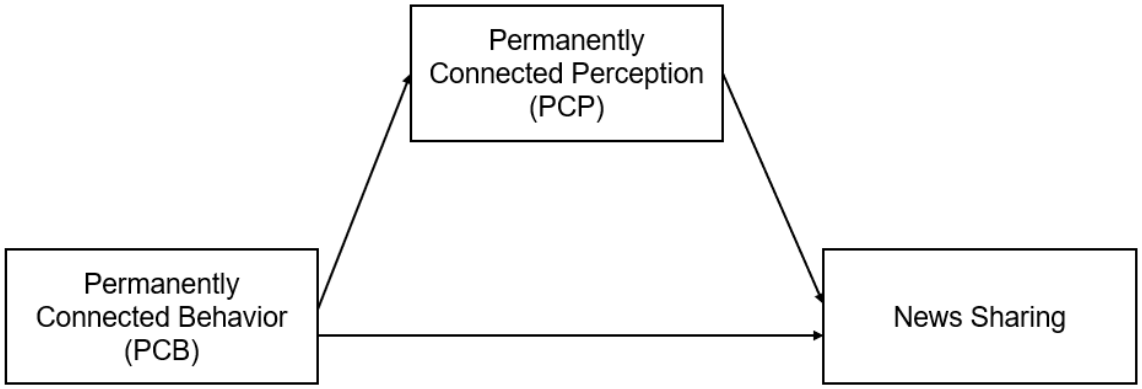
information that concerns time-sensitive social issues. In line with these considerations, the following was hypothesized regarding the relationship between PCP and news sharing:

H3: PCP will be positively associated with news sharing.

I have so far predicted that PCB (H2) and PCP (H3) may respectively motivate news sharing. As predicted in the previous chapter, PCB may influence PCP (H1). Together, these suggest a process through which PCB increases news sharing via PCP. I label this process the model of *the PCP-facilitated spill-over* (Figure IV.1.). Testing this model would offer empirical evidence that PCP is a new pathway of the spill-over. This would also add to the spill-over literature to date, as I propose an alternative spill-over process model that may be highly relevant in the current POPC environment. To test the PCP-facilitated spill-over model, I hypothesize the indirect influence of PCB on news sharing through PCP:

H4: PCB will be positively associated with news sharing through PCP.

Figure IV.1. Conceptual Model of the PCP-Facilitated Spill-Over



CHAPTER V

The PCP-Sharing Efficacy Process

As discussed in the earlier chapter, previous literature hints at several possibilities for how *permanently connected perception* (PCP)—i.e., a psychological state in which users perceive permanent co-presence with their online contacts—may motivate news sharing. Yet, there is no empirical evidence supporting such possibilities. To better understand the political impact of PCP, I intend to examine the mechanism through which PCP motivates news sharing. Drawing on prior work, I first suggest that *information-sharing efficacy* is the potential mechanism. The first section of this chapter will thus discuss why I suggest that a) PCP may be associated with information-sharing efficacy and b) information-sharing efficacy may influence news sharing. I then introduce the model of the *PCP-sharing efficacy process* in which information-sharing efficacy mediates the impact of PCP on news sharing.

Second, I discuss whether and, if so, how information-sharing efficacy may interact with *political interest*. Individuals differ in terms of how often they get news or how deeply they are involved with news in their everyday life. Such a difference may lead to different degrees of opportunities to share news. I use political interest to capture such a difference, based on the view that individuals with greater political interest may encounter and get news more often than do those with low political interest. The second part of this chapter thus discusses whether and, if

so, how political interest conditions a) the impact of information-sharing efficacy, and b) the indirect impact of PCP on news sharing, namely, the PCP-sharing efficacy process.

Information-Sharing Efficacy as the Mechanism

PCP and Information-Sharing Efficacy

Users who hold a strong sense of permanent togetherness, i.e., a high level of PCP, may perceive greater efficacy in how their message would be received by others. This is because the user's heightened awareness of an *always-present audience* may engender a belief that what the user shares online can be received instantly by the audience. I refer to this belief as *information-sharing efficacy*. Previous literature on the imagined audience has suggested that online users hold "a mental conceptualization of the people with whom they think are communicating" (Litt, 2012, p. 331). This notion of the imagined audience offers insight into how PCP may foster information-sharing efficacy.

Imagined Audience and Receptivity. Previous studies on social media expression have suggested the importance of the imagined audience in people's sharing behavior. Using a mixed-methods approach involving a diary study and interviews, Litt and Hargittai (2012) found that social media users' imagined audiences are often composed of close-tie online contacts, such as friends and family. When people share something on social media, not only do they think about "who" is going to receive the message but also "how" the message would be received by the imagined audience (Litt, 2012; Marwick & boyd, 2011; Vitak, 2012). For instance, Goh and colleagues (2017) found that social media users rely on their imagined audience for judging what is appropriate and relevant to share online: these researchers found that respondents selectively

shared news based on whether sharing specific news would help or hurt their relationship with others.

Others also found that news sharing was dependent on the extent to which the users perceive that specific news fit the interests of their network and whether the users think the audience would receive and accept the news "seriously" (Ihm & Kim; 2018). Together, prior literature suggests that people rely on the *imagined message reception*—that is, their imagination of how their message would be received by the recipient when they share news.

PCP, Omnipresent Audience, and Instant Reception. As suggested, among users with strong PCP, the idea of users' online network may be maintained highly salient (e.g., Reinecke et al., 2018): users with high PCP would hold an awareness that users' network is always accessible and available. In other words, these individuals would perceive that their imagined audience is *omnipresent*. This omnipresent audience, like the imagined audience, may motivate users to consider how the users' messages would be received by the audience.

In particular, the omnipresent audience may lead to the view that users' messages would always be promptly received and responded to by the audience. This perception may develop a sense of efficacy in users' sharing behavior whereby the users believe that their message can reach others and be responded to as promptly as it is shared. This is the belief I introduced earlier as *information-sharing efficacy*. I label this belief "efficacy" because it taps into the sharers' perception that they can "make" their message be heard and responded to by others, a concept that is closely related to what Bandura (1977) calls "self-efficacy" or the belief that one is capable of performing a given behavior. In line with the consideration above, I hypothesize that there would be a positive relationship between PCP and information-sharing efficacy:

H5: PCP will be positively associated with Information-sharing efficacy.

Information-Sharing Efficacy and News Sharing

Sense of Efficacy and Outcome Expectancy. The perceived capabilities in performing a behavior and users' belief in how that behavior would lead to a desired outcome are critical foundations of motivation and behaviors (Bandura, 1982). In social cognitive theory, Bandura (1977) suggested *self-efficacy* and *outcome expectancy* as important predictors of behavior, both of which offer important insight into how information-sharing efficacy may motivate news sharing.

First, self-efficacy, as noted, involves perceptions that one is capable of successfully performing a behavior (Bandura, 1977). Studies have suggested that positive judgments of self-efficacy—i.e., an estimation that one can perform a requisite behavior—can lead to greater willingness to perform a given behavior (Bandura, 1986, 1997). Perceptions of self-efficacy can also influence *how* individuals perform the given behavior; greater self-efficacy was related to higher levels of effort and increased persistence in completing a given task (Bandura, 1997). This suggests that users with a belief that they can effectively share information may be more willing to and make a greater effort in disseminating information when opportunities arise than those without such a belief.

Second, outcome expectancy is defined as "a person's estimate that a given behavior will lead to certain outcomes" and is known to influence behavioral intention (Bandura, 1977, p. 193). Research has suggested that intention to perform a behavior can depend on the perceived value or usefulness of that behavior; perceptions that a positive outcome will flow from a given

behavior can increase one's intention to engage in that behavior (Bandura, 1986, 1997). Similarly, the share's belief that their sharing behavior can produce positive outcomes—i.e., the recipient can instantly receive and be informed about news events—can increase the sharer's news-sharing intention. Information-sharing efficacy may thus encourage news sharing.

Perceptions of Competence and News Sharing. Studies in communications have also found perceptions of efficacy and outcome expectancy as important motivators of communicative behaviors. For instance, Noelle-Neumann (1983) developed a measurement scale for opinion leadership (i.e., the personality strength scale). The scale includes several items that tap into perceived communication capability, such as "I usually count on being successful in everything I do" and "I enjoy convincing others of my opinion." This suggests that perceptions of capability in persuading others are defining characteristics of opinion leaders. As opinion leadership is often associated with news sharing (Katz & Lazarsfeld, 1955; Winter & Neubaum, 2016), it is conceivable that individuals who perceive greater competence in communicating with others (e.g., opinion leaders) may share news with their social network more.

Recent work also suggests that the expectation of positive outcomes can motivate sharing behavior online. Lin et al. (2019) found that social media users who hold a favorable attitude toward sharing information—i.e., positive perceptions of what the users can achieve from sharing information—were more likely to share information on social media. Relatedly, perceptions of communication competence were positively related to online political expression. In their study on 783 Columbian social media users, Velasquez and Rojas (2017) found that users who perceived themselves as competent in using social media for relationship maintenance were more likely to express their political views on social media. These researchers contended

that the perceived competency allowed greater psychological resources and opportunities to utilize social media for various activities and thereby led the users to express themselves politically. This suggests that individuals who view themselves as competent in sharing information may be more likely to engage in various forms of expression including news sharing.

As noted in the previous chapter, the decision to share specific news may depend on the informational value the user perceives in that news (Cappella et al., 2015; Rudat et al., 2014). I have suggested that instant receptibility—whether specific news can be instantly received and responded to—can define the informational value of that news. For instance, news that may have an immediate impact on people, such as information about a recently passed bill (e.g., a plastic bag fee law) or a break-out of a public event (e.g., a political rally), will have a greater informational value when it is disseminated as promptly as possible. This suggests that individuals who are efficacious about the *instant receipt of their message* perceive a greater informational value in news overall and consequently engage in news sharing.

One important characteristic of the contemporary media environment is that the internet offers a unique space where people's personal and public spheres intersect. The internet affords individuals various channels, some of which formerly considered as mass communication channels (i.e., channels that enable one-to-many communication), to share their personal messages (i.e., messages that are personalized and tailored to the interest and nature of relationships). For instance, on social media, people can "broadcast" a socially significant event (e.g., regarding important social issues and public affairs) to a large audience consisting of different social ties while personalizing these messages so they can be meaningful and applicable

to particular individuals or a group of recipients (social media network, online communities). News sharing thereby has become what some scholars term “masspersonal” communication (O’Sullivan & Carr, 2018).

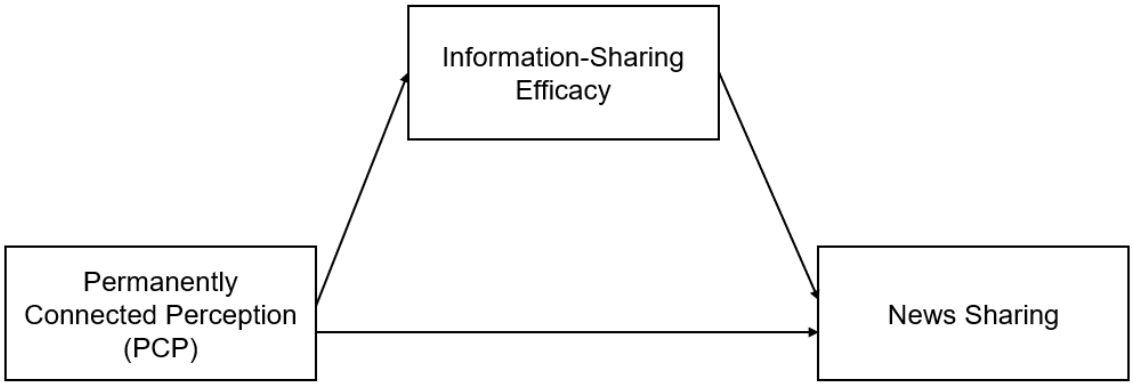
Individuals engaging in masspersonal communication can thus expect that their messages can reach a wide range of viewers and simultaneously receive meaningful responses from the recipients either privately or publicly. This interpersonal aspect of news sharing behavior suggests that a sense of efficacy or competence in one’s sharing behavior—that their messages can be instantly received and responded to—may play an important role in encouraging news sharing. On the basis of the discussion above, I hypothesize that there would be a positive relationship between information-sharing efficacy and news sharing.

H6: Information-sharing efficacy will be positively associated with news sharing.

Based on the hypotheses introduced above regarding the relationships between PCP and information-sharing efficacy (H5) and information-sharing efficacy and news sharing (H6), I propose a model that suggests the process through which PCP influences news sharing, and label it the *PCP-Sharing efficacy process*. The conceptual model of this process is illustrated in Figure V.1. To test this process, I hypothesize the indirect influence of PCP on news sharing through information-sharing efficacy:

H7: PCP will be positively associated with news sharing through information-sharing efficacy.

Figure V.1. Conceptual Model of the PCP-Sharing Efficacy Process



Political Interest and the PCP-Sharing Efficacy Process

As suggested in the PCP-sharing efficacy process, information-sharing efficacy mediates the process through which PCP impacts news sharing. This indicates that information-efficacy plays an important role in *explicating* how PCP, a communication technology-generated perception, motivates political behavior, news sharing.

More importantly, information-efficacy is *apolitical* by nature, that is, it is not necessarily related to individuals' political self-concepts (e.g., political interest, political efficacy) or derived from prior political experiences (e.g., political participation, news consumption). This suggests that the PCP-sharing efficacy process may occur, *regardless* of users' political predispositions (e.g., political interest, efficacy, knowledge). Information-sharing efficacy may thereby have significant implications for the spill-over.

Yet, there is still a possibility that the impact of information-sharing efficacy may vary depending on people's political inclination. For instance, individuals may differ in terms of how often they get news—whether by seeking it or stumbling upon it—or talk about news with

others. Such a difference in sharers' overall *involvement with news* may condition the political impact of information-sharing efficacy. To explore whether the impact of information-sharing efficacy varies depending on individuals' political involvement, I use *political interest* and examine how it interacts with information-sharing efficacy.

Political interest offers a useful way to identify individuals who may have greater "opportunity" to share news. People with greater political interest get or read news online (Prior, 2010; Strömbäck et al., 2013), talk about politics and social issues with others (Barnidge & Rojas, 2014), and share news (Lane et al., 2019) more often than those who are less interested in politics. This suggests that individuals with a higher political interest may have a better chance to "find" news, thus have a greater opportunity to share that news.

Examining whether and, if so, how the impact of information-sharing efficacy varies among individuals with a high and low political interest may help us better understand the spill-over implications of information-sharing efficacy. This would also help us to understand the importance of users' prior news involvement—which shapes the opportunity to share news—in determining the political impact of PCP and information-sharing efficacy.

The Conditional Influence of Political Interest

Political interest indicates the extent to which politics is personally salient to individuals (Prior, 2010). Among individuals who perceive politics personally salient, politics is likely an important part of their identity. Individuals who are interested in politics therefore closely follow what is happening in politics and get news and political content online more often than their counterparts (Prior, 2010; Strömbäck et al., 2013). These individuals may thus have

more opportunities to find news and share that news with others. Among such individuals with the greater "opportunity," information-sharing efficacy may catalyze news sharing.

Individuals with low or little political interest on the other hand may lack such an opportunity, as these individuals may seek and follow news less than their counterparts. Individuals who are less interested in politics are also less likely to converse with others online about politics (Barnidge & Rojas, 2014). It is also less likely that these individuals would stumble upon news information online: research found that users who consume and engage in political content less often on social media were less likely to see political content and news on their social media feeds (Thorson et al., 2021). The lack of contact with news overall would offer less chance for these individuals to find news they can share. Among these individuals with less "opportunity," information-sharing efficacy may have less or little impact on news sharing. Together, this suggests that the relationship between information-sharing efficacy and news sharing may be *stronger* among users with a *high level* of political interest. The following was therefore hypothesized:

> *H8:* The impact of information-sharing efficacy on news sharing will be stronger among individuals with a high level of political interest.

Extending H8, I intend to examine whether the indirect impact of PCP on news sharing through information-sharing efficacy would be conditioned by political interest. As noted, among individuals with greater political interest, there would be more opportunities for individuals to find and engaged in news and thus greater chance to share that news. Among these

individuals, PCP may motivate news sharing through information-sharing efficacy. Among individuals with a lower or little political interest, on the other hand, there would be less chance for them to get involved with news. Among these individuals who lack the "opportunity" to share news, the indirect impact of PCP on news sharing may not be as strong. In line with these considerations, the following was hypothesized:

> *H9:* The indirect impact of PCP on news sharing through information-sharing efficacy will be stronger among individuals with higher levels of political interest.

CHAPTER VI

Methods

Overview of the Present Research

The current study utilized two sets of data collected in the U.S. First, a two-wave panel survey data was collected. Past research used panel survey data to test the relationship between individuals' past media-behaviors—i.e., media use, online activities—and perceptions derived from these behaviors (e.g., Campbell & Kwak, 2011; Gil de Zúñiga, Weeks, et al., 2017; Lane et al., 2019). I thus used panel survey data to examine how PCB is associated with the development of PCP over time. I also tested whether the relationship between PCB and PCP affects news sharing, namely the PCP-facilitated spill-over model. Finally, I used the survey data to examine whether information-sharing efficacy mediates the impact of PCP on news sharing, i.e., the PCP-sharing efficacy process, and explore whether and, if so, how political interest moderates a) the political impact of information-sharing efficacy, and b) the PCP-sharing efficacy process.

In addition to the panel survey, I conducted an experiment to examine the PCP-sharing efficacy process. PCP is a new construct first conceptualized and operationalized in the current study. The political impact of PCP hypothesized in the present study is therefore only exploratory. Because we know little about PCP's impact, exploring it warrants more rigorous examination. Moreover, past research on co-presence—which offered a conceptual and

operational basis for PCP—has used experiments to explore the psychological processes involved with co-presence (e.g., Muhlbach et al., 1995). Following prior studies, I adopted an experimental method to explore the impact of PCP.

I therefore use a) survey and b) experiment to investigate the PCP-sharing efficacy process. The use of the experiment compensates for limitations of the survey and allowed me to triangulate the findings from the panel survey data. Thus, the mix of these two methods offered more solid basis for understanding the impact of PCP on news sharing.

Data 1

Procedure

The two waves of survey data were collected via Qualtrics. An invitation to participate in an online survey was emailed to 3,174 participants. A total of 970 respondents agreed to participate in the survey and provided responses (30.56% response rate). To ensure the quality of response, respondents who completed the anticipated 14-minute survey in less than 7 minutes, and who failed the two attention checks were removed from the analysis (n = 163, 16.80%). This resulted in a sample of 807 respondents in Wave 1 (W1). These respondents were recontacted 3 to 5 weeks after their W1 completion to participate in Wave 2 (W2) survey. Of the 807 respondents in W1, 454 completed W2 (56.26% retention rate). W1 data was collected on September 9 through 28, and W2 on October 16 through 20, 2020.

Sample

Quotas were applied for age, gender, race, and education attainment to ensure that the W1 sample resembles the US adult population. Although the quota sampling method does not

produce a probability-based random sample, the resulting data reasonably reflects the demographic characteristics of the national population reported by the US Census Bureau in the 2015 American Community Survey (ACS). Women comprised 51.9% of the sample in W1 (ACS = 51.4%) and the median age for W1 sample was 44 (*SD* = 16.27; ACS = 45-54 years). The median education level (W1) was "Some college but no degree" (ACS = some college). In terms of race, 62.2% of respondents self-identified as White, 12.6% as Black, 17.6% as Hispanic, 5% as Asian, and 2.6% as other, and this composition is comparable to the ACS report (White = 62.3%, Black = 12.4%, Hispanic = 17.3%, Asian = 5.4%, other race = 2.6%).

Measures

Permanently connected behavior (PCB). To measure the independent variable, I adopted Vorderer and colleagues' approach (2016) in measuring PC behavior. Respondents were first shown a prompt that reads: "The following describes various situations in which you may find yourself in your daily life. Thinking about your experience over the past few weeks, please indicate how often you have communicated with your friends or family using a mobile phone or computer (e.g., texted, called, talked to them on social media or via instant messenger) in the following situations." Participants were then shown a set of everyday-life situations and asked to indicate how frequently they have communicated with others online in each situation.

The measure used in Vorderer et al. (2016) was developed in the context of college students therefore, it includes social situations that are more relevant to college students than average adults, such as in a classroom or during a lecture. I therefore adapted the original PCB situations so that the measure overall is more applicable to American adult users.

The set of PCB situations used in the current study is: 1) when they were in a workplace (including while working remotely from home), 2) when they were attending a class or studying at school (including while they were taking online classes or studying at home), 3) when they were home (and not working or studying remotely), 4) when they were out alone for running an errand or jogging, 5) when they were out spending time with friends or family, 6) when they were somewhere waiting for someone or something, and 7) when they were in a car, bus, train, or using any other forms of transportation.

Responses were measured using a seven-point scale: 1 (*Not at all*), 2 (*Every few hours*), 3 (*Once an hour*), 4 (*2-3 times in an hour*), 5 (*About every 10 minutes*), 6 (*About every 5 minutes or more often*), and 7 (*This situation does not apply to me*). Responses were then combined to create an index. The last option, "7" was coded "1" when creating the index (W1 α = .88, M = 1.99, SD = 1.01; W2 α = .89, M = 1.79, SD = .89).

Permanently connected perception (PCP). PCP was measured using six items that tap three dimensions of *co-presence* introduced in the earlier chapter and those are: a) perceiving the presence of others, b) a sense of being together, and c) a sense of having face-to-face interaction (Al-Ghaith, 2015; Xu et al., 2011; Zhao, 2003). I adapted these items so they can reflect the extent to which respondents have experienced these dimensions *permanently* in their daily lives. The final sample includes "I feel the presence of my online contacts in my daily life," "I feel like my online contacts are with me all the time," and "I feel like communication with my online contacts is always in real-time." A full list of these items appears in Table VI.1. Responses were measured using a seven-point scale ranging from 1 (*Strongly disagree)* to 7 (*Strongly agree*) and

averaged to create an index (W1 α = .94, *M* = 4.06, *SD* = 1.49; W2 α = .94, *M* = 3.97, *SD* = 1.51).

Table VI.1. List of PCP Items

Co-Presence Dimensions	Co-Presence Items	PCP Items
Perceiving the presence of others	- I was aware of others' presence in my social network sites (SNS). - Using Instant Messenger (IM), I feel I am co-located with those people on my IM contact list.	- I feel the presence of my online contacts in my daily life. - I feel like I am always surrounded by my online contacts.
A sense of being together with others	- I felt like having others with me in my SNS. - Using IM, I feel those people on my IM contact list and I are together in the same place.	- I feel like my online contacts are with me all the time. - I feel like my online contacts and I are always together, regardless of when and where we are physically.
A sense of having face-to-face interaction	- Using IM, I feel I have the face-to-face communication with those people on my IM contact list. - It was like a real face-to-face meeting.	- I feel like communication with my online contacts is always in real-time. - I feel as though I am talking face-to-face with my online contacts throughout the day.

Note. Co-presence items are selected from three studies, Al-Ghaith (2015), Xu et al. (2011), and Zhao (2003).

Information-sharing efficacy. To assess information-sharing efficacy, six items were used to measure the extent to which respondents believe the information they shared would be instantaneously a) received and b) responded by their online contacts as it is shared. Respondents were first asked to think about their overall experience of sharing information with their online contacts. They were then asked to indicate the extent to which they agree with the following

statements that read: “When I share a piece of information with my social contacts, I believe that the information I share, in general, will…” 1) “be received by my online contacts instantly after I share it,” 2) “reach my online contacts almost immediately,” 3) “be seen by my online contacts as soon as I share it,” 4) “get instant feedback from my online contacts,” 5) “get a response from my online contacts as soon as I share it,” and 6) “elicit an immediate reaction from my social contacts.” Responses were measured using a seven-point scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*) and combined into an index (W1 α = .95, M = 4.19, SD = 1.40; W2 α = .95, M = 4.04, SD = 1.44).

News sharing. Online news sharing was the criterion variable and measured using six items that ask respondents how often in the past month (W1) and in the past two weeks (W2) they have 1) reached out to their online contacts *individually* (via calling, texting, or instant messaging) and 2) posted things on social media or personal blogs that *many of their social contacts (e.g., friends and family) could see* to share, three types of news content and they were: a) a news story about current events related to politics and social issues, b) a photo, video, or meme related to current events related to politics and social issues, created by *someone else*, and c) a photo, video, or meme related to current events related to politics and social issues, created by *themselves*. Responses were measured on a six-point scale ranging from 1 (*Never)* to 6 (*Every day*) and combined to create an index (W1 α = .94, M = 2.26, SD = 1.40; W2 α = .93, M = 1.98, SD = 1.24).

Political interest. Political interest was measured using two items adapted from prior research (Gil de Zúñiga et al., 2014). Respondents were asked to indicate the extent to which they are a) interested in and b) attentive to information about what is going on in politics and

public affairs. Response were measure using a seven-point scale, 1 (*Strongly disagree*) to 7 (*Strongly agree*), and combined into an index (W1 r = .80, M = 4.72, SD = 1.56).

Control variables. Demographic control variables included: *sex, age, education*. For education, response options included: less than high school degree, high school graduate (high school diploma or equivalent including GED), some college but no degree, associate degree in college (2-year), bachelor's degree in college (4-year), and post-graduate degree (MA, PhD, JD, MD).

In addition to demographics, I controlled for several relevant factors that may theoretically influence the mediating and dependent variables of the present study. Prior work indicates that news media use is positively associated with political expression and participation online (Gil de Zúñiga, Molyneux, et al., 2014; Hasell & Weeks, 2016). Respondents' news consumption was therefore measured and included in the analysis. Respondents were asked, on a five-point scale ranging from 1 (*Never*) to 5 (*Every day)*, how many days in the past week they have used a) broadcast television news (on TV or online), b) daily newspaper (in print), c) online news sites, d) news aggregator sites or apps, e) radio or podcasts, and f) search engines, to get news about current events and public affairs. These items were averaged and labeled *news media use* (W1 α = .78, M = 2.47, SD = 1.02). I also measured respondents' social media use for news. Respondents were asked how frequently they use social media to get news or political information (W1 M = 2.66, SD = 1.85, a six-point scale ranging from 1 (*Never*) to 6 (*More than once every day*)). This variable was labeled *social media news use*.

Research suggests that opinion leadership positively predicts opinion expression online (Winter & Neubaum, 2016). *Opinion leadership* thus was measured using four items selected

from the generalized opinion leadership scale (Gnambs & Batinic, 2011). Sample items include "Among my friends and acquaintances, I often decide which issues are currently relevant or important" and "It is easy for me to influence other people." These items were averaged and included in the analysis (W1 α = .88, M = 4.14, SD = 1.33).

Prior work suggests that informational use—using the internet for obtaining information—positively predicts forms of political interactions online (Ekström & Östman, 2013). To assess the impact of PCB on news sharing, it is important to control for users' informational use of the internet. Vorderer and colleagues (2016) also suggested the importance of considering general information consumption when examining the PC phenomenon.

As noted in the previous chapter, Vorderer and colleagues' POPC (2016) consists of two distinct sub-phenomena, PO, "permanently online" or permanent connectedness to *online content*, and PC, "permanently connected" or permanent connectedness to *other users*. The different nature of PO and PC may involve a distinct set of motivations and thereby produce distinct consequences. Because of this, Vorderer and colleagues (2016) suggest that PO and PC should be treated separately when examining their impacts. This suggests that we may need to control for the PO behavior, i.e., the behavioral dimension of the PO phenomenon, when examining the unique impact of PCB, i.e., the behavioral dimension of PC. I therefore measured and controlled for respondents' PO behavior.

To capture respondents' PO behavior, I adapted Vorderer and colleagues' measure (2016): respondents were asked how often over the past two weeks, they have read, listened, or watched content from the internet or searched for information online. The same set of situations that was used to measure PCB above was used for measuring the PO behavior. These items were

combined into an index and labeled *permanently online behavior* (POB; W1 α = .87, *M* = 2.13, *SD* = 1.11).

Previous studies finds that people tend to share news and express political opinions more in a network consisting like-minded others (Barnidge et al., 2018; Kim & Ihm, 2020; Vraga et al., 2015). Thus, perceptions of network political homogeneity were measured. Respondents were asked, on a four-point scale ranging from 1 (*None*) to 4 (*Many*), how many individuals in their online social network they think share a) the same views on social issues or politics, and b) support the same presidential candidate. These items were combined and labeled *network homogeneity* (W1 *r* = .77, *M* = 2.63, *SD* = .94).

Finally, because the present study was conducted during the COVID-19 pandemic, it is important to consider how the pandemic context influences respondents' daily practices of relationship maintenance and news consumption. The pandemic context significantly restricts individuals' social activities especially in physical settings and this may influence PCB and PCP in several unique ways. For instance, the limited social activities and gatherings may increase PCB because the lack of opportunities to meet with others in physical settings may encourage individuals to engage in mediated interaction more often. The lack of physical social contact during the pandemic may also create a peculiar environment in which individuals are more (or less) likely to develop PCP.

Moreover, the degree to which people experience constraints on their social activities may vary by individuals' social contexts and motivation. To take account of these possibilities, I measured the degree to which respondents have "practiced" or experienced social distance during the pandemic using two items: "I have not been meeting up frequently with other people"

and “I have been staying at home much more than usual.” These items were then combined into an index and labeled *social distance* (W1 r = .60, M = 5.33, SD = 1.51; seven-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*)).

I also measured and controlled for the extent to which respondents closely follow news during the pandemic because this can influence how often they read or share news. Two items were used to capture *attention to news*: “I have been paying close attention to what is going on in society” and “I have been following news much more than usual” (W1 r = .65, M = 4.91, SD = 1.49; seven-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*)). The correlations between the measured variables are presented in Appendix A.

Reliability and Validity of PCP

Several analyses were conducted to ensure the validity and reliability of PCP measure used in the present study. First, the internal consistency of the measure was high (Cronbach’s alpha = .94). An exploratory factor analysis further showed that PCP is a single construct. The first factor predicts 76% of the variance with an eigenvalue of 4.55 and factor loadings ranging from .83 to .91.[1]

I also examined the predictive validity of PCP. Data 1 included questions tapping into respondents’ perceptions of *responsiveness* of their online contacts. Because PCP represents perceptions that one’s online contacts are permanently co-present, those with high PCP are likely to anticipate real-time communication with their online contacts. Such an expectation includes receiving *an instant response* from online contacts. I therefore expect that PCP will positively

[1] The second factor predicts 7.51% of the variance with an eigenvalue of .45., indicating that there was a sharp decline (the “elbow”) and a large gap between the first and second factors. This suggests that one factor is optimal.

correlate with the perception that one's online contacts are *highly responsive* to one's messages. This perception was measured by asking respondents, on a five-point scale ranging from 1 (*Never*) to 5 (*Very frequently*), how often their a) friends or family and b) acquaintance, in general, have instantly responded to the respondents' messages and labeled *perceived responsiveness of online contacts.*

PCP positively correlates with the *perceived responsiveness of online contacts* (r = .42). Additionally, an ordinary least square regression with PCP, socio-demographics, and other control variables—that may also influence the responsiveness perception, i.e., PCB and opinion leadership—showed that PCP correlates with the responsiveness perception, b = .20 (.02), p < .001. The summary of the regression analysis appears in Appendix B. Together, the PCP measure showed good internal reliability and predictive validity.

Data 2

Participants

After the study was approved by the Institutional Review Boards of the University of Michigan, Qualtrics was contacted for recruitment of participants. Quotas for age, gender, race, and education attainment were applied to ensure that the demographic characteristics of the participants reasonably resemble the U.S. national population. The PCP manipulation used in the current study requires participants to have basic knowledge about social network sites (SNS). I therefore limited participants to social media users. A total of 270 U.S. adults participated in the study. The median age for these participants was 42.11 (*SD* = 16.54). Women composed 51.1% of the sample, and the median education level was "Some college but no degree." In terms of

race, 61.5% of respondents self-identified as White, 12.6% as Black, 17.5% as Hispanic, 5.6% as Asian, and 3.0% as other.

Procedure

Upon participants' consent to participate in the study, participants were randomly assigned to one of the two conditions (high vs. low PCP). At the beginning of the session, participants were present with a prompt that reads: "On the following page, you will be shown a scenario. Please read it carefully and imagine that you are in the situation described, then answer the following questions based on what you would think or do in that situation."

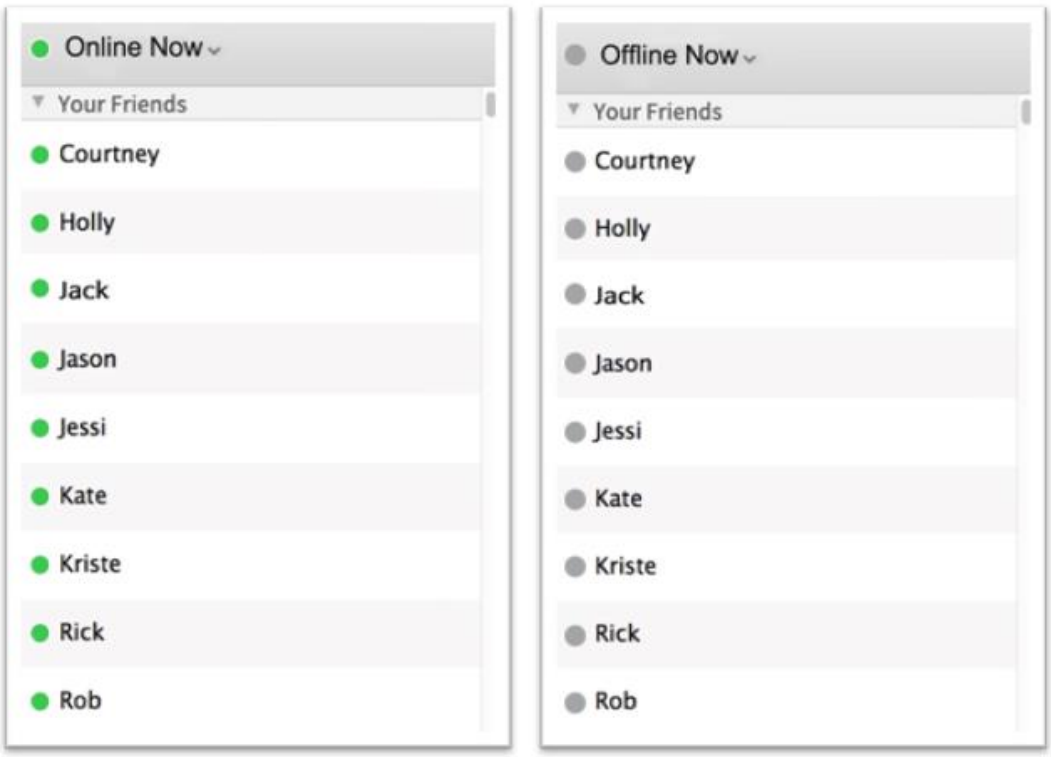
Participants then were shown a short scenario that describes a situation in which they are on a fictional social media platform. The scenario also describes that the social media platform is featured by an application that allows users to identify which of their social media contacts are online. To better illustrate this application to participants, an example image of the application was included in the scenario as shown in Figure VI.1.

The scenario presented in the high PCP condition described that participants' social media contacts have been *online* throughout the day, while the scenario shown in the low PCP condition illustrated that participants' social media contacts have been *offline*. The scenarios used in the two conditions were almost identical, with the only difference in the online or offline status of participants' social media contacts. The following is the scenario shown in the high PCP:

You are on social media. This specific platform identifies which of your social media friends are currently online (see example below). You notice in the application window that all

of your social media contacts are currently online. A few hours later, you visit the social media site again and find out that all of your social media contacts who were online earlier are still online. By checking this window multiple times throughout the day, you learn that most of your social media contacts have been online throughout the day.

Figure VI.1. Example Images Shown in the High (Left) and Low PCP Conditions (Right)



A timer was applied to prevent participants from skimming through the scenario too fast or not reading at all. After reading the scenario, participants were directed to complete measures assessing information-sharing efficacy and intention to share news.

Manipulation Check

Pretest. Prior to the experiment, a pretest was conducted to assess whether the PCP scenarios above can successfully manipulate PCP. A total of 210 adults who passed the captcha verification were recruited from an online crowd-sourcing site, Mechanical Turk (Turk Prime). These participants were randomly assigned to one of the two conditions: high PCP scenario (n = 103) and low PCP scenario (n = 107). Participants were first shown the same prompt above that asks them to carefully read the scenario and imagine that they are in the situation described. After reading the scenario, participants were asked to indicate the extent to which they would agree to the PCP items if they were in the situation described. I used a slightly adapted PCP measure from my earlier survey: sample items include "I would feel the presence of my social media contacts in my daily life", "I would feel like my social media contacts were with me all the time" and "I would feel like communication with my online contacts is always in real-time" (α = .96, M = 4.10, SD = 1.72).

Results. The two scenarios designed to manipulate the low and high levels of PCP showed a significant difference in levels of PCP reported. Participants in the high PCP scenario condition reported a higher level of PCP (M = 4.49, SD = 1.63) than those in the low PCP scenario condition (M = 3.73, SD = 1.72), t (208) = -3.28; p < .01 (two-tailed), suggesting that the manipulation of PCP was successful. The two scenarios were therefore used in the main study.

Measures

Information-sharing efficacy. To measure information-sharing efficacy, I adapted items from my earlier survey. Participants were first shown a prompt that reads: "In the earlier situation described, to what extent do you think the content you shared on the social media

platform will be seen by your social media contacts?" Participants were then asked to indicate, on a seven-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), the extent to which they agree to the following six statements: "If I were to share a piece of information on the social media described in the scenario, the information I share would…" 1) "be received by my social media contacts immediately after I shared it," 2) "reach my social media contacts almost immediately," 3) "be seen by my social media contacts as soon as I shared it," 4) "get instant feedback from my social media contacts," 5) "elicit a response from my social media contacts as soon as I shared it," and 6) "elicit an immediate reaction from my social media contacts." These items were then averaged (α = .94, M = 4.45, SD = 1.52).

Intention to share news. Seven items were asked to measure participants' likelihood of sharing news. Participants were first shown a prompt that reads: "The following items ask how likely you are to share news information with your social media contacts if you were in the earlier scenario." Participants were then asked to indicate how likely they are to a) *post* news content on the social media site and b) *individually share* news content with their social media contacts, in three hypothetical situations: if they were to a) read a news story or watch a news clip about current events related to politics and social issues in the media, b) saw online content about current events related to politics and social issues, which had been created by an individual or an organization, and c) witnessed a newsworthy event related to politics and social issues while walking on the street. Additionally, one item asked participants' likelihood of liking or commenting on others' social media posts on current events related to politics and social issues. The responses were measured on a seven-point scale ranging from 1 (*Very unlikely*) to 7 (*Very likely*) and averaged to create an index (α = .92, M = 4.35, SD = 1.51).

CHAPTER VII

Results

Overview of the Analysis

The analysis consists of four sections. The first part of the analysis examines the longitudinal relationship between permanently connected behavior (PCB) and permanently connected perception (PCP). I conducted ordinary least squares (OLS) regressions using Data 1. As noted in the previous chapter, the analyses conducted in the present research took advantage of the panel survey design. The use of panel data strengthened the test of the causal links between the independent and dependent variables.

To test whether PCB predicts PCP over time (H1), I conducted a lagged-dependent variable regression analysis using both waves of the panel survey data. Specifically, I included W1 dependent variable, i.e., W1 PCP, in the model. This allowed me to examine whether PCB predicts the change in PCP between the waves (Eveland & Thompson, 2006).

The second part of the analysis examines a) the impacts of PCB and PCP on news sharing and b) the PCP-facilitated spill-over model. I conducted lagged-dependent variable regression analyses using both waves of the panel survey data (Data 1) to examine whether a) PCB (H2) and b) PCP (H3) are respectively associated with news sharing. To control for the

prior levels of the dependent variables, I included W1 dependent variables in each regression model.

To test H4 which predicts the indirect relationship between PCB and news sharing through PCP, I used PROCESS macro for SPSS (Hayes, 2013). PROCESS utilizes OLS regression models tested in H1, H2, and H3, to estimate the unstandardized indirect effect of the predictor by computing 10,000 bootstrapping samples and bias-corrected 95% confidence intervals (CIs).

The third part of the analysis examines the PCP-sharing efficacy process. Using Data 1, I first conducted lagged-dependent variable regression analyses to test relationships between a) PCP and information-sharing efficacy (H5), b) information-sharing efficacy and news sharing (H6), and c) PCP and news sharing through information-sharing efficacy (H7). Model 4 of PROCESS macro was used to test the indirect effect of PCP on news sharing through information-sharing efficacy (H7). I then repeated the same set of analyses using Data 2 (experimental data).

The final part of the analysis investigates whether and, if so, how political interest moderates a) the relationship between information-sharing efficacy and new sharing (H8) and b) the PCP-sharing efficacy process (H9). I used Data 1 to test these relationships. Model 1 and 14 of the PROCESS macro were used to test H8 and H9 respectively.

To better understand the nature of these interactions, I employed the *two-step procedure* that was recommended by previous studies (Aiken & West, 1991; Berry et al., 2012; Kingsley et al., 2017). First, I test the statistical significance of omnibus interaction coefficients to examine whether marginal relationships between the independent and dependent variables (i.e., regression

slopes) across different levels of moderators were discernibly different from one another. Then, by using the "pick-a-point approach" (Hayes, 2013), I examine whether marginal relationships at three different levels of moderators (−1 SD mean, mean, and +1 SD mean) were statistically different from zero (Hayes, 2013).

The Relationship Between PCB and PCP

H1 predicted that PCB would be positively associated with PCP over time. As noted, a lagged-dependent variable regression analysis was conducted using both waves of the panel data. I included W1 PCB and W1 PCP in the model so that these two factors predict W2 PCP. I also included socio-demographics, age, gender, education, and the pandemic context consisted of *social distance* and *attention to news* in the model. All control variables included were W1. The following model was therefore estimated:

$$\text{PCP (W2)} = b_0 + b_1\,\text{PCB (W1)} + b_2\,\text{PCP (W1)} + b_3\,\text{age} + b_4\,\text{gender} + b_5\,\text{education} + b_6\,\text{social distance (W1)} + b_7\,\text{attention to news (W1)} + \varepsilon \quad \text{(Model 1)}$$

An OLS analysis indicated that PCB (W1) was positively associated with PCP (W2), $b = .20$ (.07), $p < .01$ (Table VII.1.). This suggests that respondents who reported high levels of PCB were more likely to hold greater PCP over time.

Table VII.1. Regression Model Predicting W2 PCP

Predictors	PCP (W2)
	Model 1
PCB (W1)	.20 (.07)**
PCP (W1)	.57 (.04)***
Socio-Demographics	
Age	.00 (.00)
Gender	.12 (.12)
Education	-.01 (.04)
Pandemic Context	
Social Distance (W1)	.08 (.05)#
Attention to New (W1)	.01 (.05)
Constant	.70 (.39)#
R^2	.39
F Statistic (df)	40.42 (7, 446)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
#$p < .10$, ** $p < .01$, *** $p < .001$ (two-tailed). $N = 454$.

The PCP-Facilitated Spill-Over Model

The Relationship between PCB and News Sharing

H2 predicted the positive association between PCB and news sharing. To test H2, I included W1 PCB, W1 News sharing, socio-demographics, and the pandemic context in the model. To estimate the independent effect of PCB on news sharing, I also included several factors that may have theoretically influenced news sharing and they were: political interest, news media use, social media news use, opinion leadership, permanently online behavior (POB), network homogeneity. All control variables included were W1. The following model was thus estimated:

News Sharing (W2) = b_0 + b_1 PCB (W1) + b_2 New Sharing (W1) + b_3 age + b_4 gender + b_5 education + b_6 political interest (W1) + b_7 news media use (W1) + b_8 social media news use (W1) + b_9 opinion leadership (W1) + b_{10} permanently online behavior (POB; (W1)) + b_{11} network homogeneity (W1) + b_{12} social distance (W1) + b_{13} attention to news (W1) + ε (Model 2)

As shown in Table VII.2. (model 2), an OLS regression indicated that there was no statistically significant relationship between PCB (W1) and news sharing (W2), b = .11 (.08), p = .18. Thus, H2 was *not* supported.

The Relationship between PCP and News Sharing

H3 predicted the positive association between PCP and news sharing. To test H3, I specified a regression model in which W1 PCP, W1 News sharing, socio-demographics, and the pandemic context predict W2 news sharing. To examine the impact of PCP on news sharing above and beyond theoretically relevant factors for news sharing, I also included the same set of control variables used in model 2 and W1 PCB. The following model was therefore estimated:

News Sharing (W2) = b_0 + b_1 PCP (W1) + b_2 PCB + b_3 New Sharing (W1) + b_4 age + b_5 gender + b_6 education + b_7 political interest (W1) + b_8 news media use (W1) + b_9 social media news use (W1) + b_{10} opinion leadership (W1) + b_{11} POB (W1) + b_{12} network homogeneity (W1) + b_{13} social distance (W1) + b_{14} attention to news (W1) + ε (Model 3)

An OLS regression indicated that PCP (W1) was positively related to news sharing (W2), $b = .08$ (.03), $p < .05$ (Table VII.2., model 3).

The Indirect Relationship between PCB and News Sharing through PCP

H4 predicted that PCP would mediate the relationship between PCB and news sharing. To test H4, I first specified two regression models which respectively predict PCP (W2) and news sharing (W2), using the same set of predictors and control variables:

$$\text{PCP (W2)} = b_0 + b_1 \text{PCB (W1)} + b_2 \text{PCP (W1)} + b_3 \text{News Sharing (W1)} + b_4 \text{age} + b_5 \text{gender} + b_6 \text{education} + b_7 \text{political interest (W1)} + b_8 \text{news media use (W1)} + b_9 \text{social media news use (W1)} + b_{10} \text{opinion leadership (W1)} + b_{11} \text{POB (W1)} + b_{12} \text{network homogeneity (W1)} + b_{13} \text{social distance (W1)} + b_{14} \text{attention to news (W1)} + \varepsilon \text{ (Model 4)}$$

$$\text{News Sharing (W2)} = b_0 + b_1 \text{PCB (W1)} + b_2 \text{PCP (W1)} + b_3 \text{PCP (W2)} + b_4 \text{News Sharing (W1)} + b_5 \text{age} + b_6 \text{gender} + b_7 \text{education} + b_8 \text{political interest (W1)} + b_9 \text{news media use (W1)} + b_{10} \text{social media news use (W1)} + b_{11} \text{opinion leadership (W1)} + b_{12} \text{POB (W1)} + b_{13} \text{network homogeneity (W1)} + b_{14} \text{social distance (W1)} + b_{15} \text{attention to news (W1)} + \varepsilon \text{ (Model 5)}$$

I then used Model 4 of PROCESS macro for SPSS (Hayes, 2013) to test the indirect relationship between PCB (W1) and news sharing (W2) through PCP (W2). As noted, PROCESS uses models 4 and 5 to estimate the unstandardized indirect effect of the predictor, by computing 10,000 bootstrapping samples and bias-corrected 95% CIs. A significant indirect

effect was found between PCB (W1) and new sharing (W2) through PCP (W2), point estimate = .02, *SE* = .01, 95% *CI* [.00, .05]. H4 therefore was supported. The summary of regression analyses used in the mediation test appear in Table VII.3.

Table VII.2. Regression Models Predicting W2 News Sharing

	News Sharing (W2)	News Sharing (W2)
Predictors	Model 2	Model 3
PCB (W1)	.11 (.08)	.08 (.09)
PCP (W1)	-	.08 (.03)*
News Sharing (W1)	.45 (.04)***	.44 (.04)***
Socio-Demographics		
Age	.00 (.00)	.00 (.00)
Gender	-.12 (.09)	-.14 (.09)
Education	-.02 (.03)	-.02 (.03)
Control Variables		
Political Interest (W1)	.04 (.04)	.03 (.04)
News Media Use (W1)	.00 (.06)	.02 (. 06)
Social Media News Use (W1)	.07 (.03)**	.06 (.03)*
Opinion Leadership (W1)	.03 (.04)	.02 (.04)
Permanently Online behavior (POB; W1)	.02 (.07)	.02 (.07)
Network Homogeneity (W1)	.02 (.06)	.01 (.06)
Pandemic Context		
Social Distance (W1)	-.01 (.04)	.00 (.04)
Attention to New (W1)	.04 (.04)	.04 (.04)
Constant	.52 (.31)#	.33 (.32)
R^2	.44	.45
F Statistic (df)	26.37 (13, 440)	25.14 (14, 439)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
#$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed). $N = 454$.

Table VII.3. Summary of Regression Models used in the PCP Mediation Test

	PCP (W2)	News Sharing (W2)
Predictors & Mediator	Model 4	Model 5
PCB (W1)	.24 (.11)*	.06 (.08)
PCP (W1)	.52 (.04)***	.03 (.04)
News Sharing (W1)	.03 (.06)	.44 (.04)***
PCP (W2)	-	.09 (.04)*
Socio-Demographics		
Age	.00 (.00)	.00 (.00)
Gender	.13 (.12)	-.15 (.09)
Education	-.03 (.04)	-.01 (.03)
Control Variables		
Political Interest (W1)	.10 (.05)*	.02 (.04)
News Media Use (W1)	-.05 (.07)	.02 (.06)
Social Media News Use (W1)	.07 (.03)#	.06 (.03)*
Opinion Leadership (W1)	.06 (.05)	.01 (.04)
POB (W1)	-.12 (.09)	.03 (.07)
Network Homogeneity (W1)	.09 (.07)	.00 (.06)
Pandemic Context		
Social Distance (W1)	.09 (.05)*	.00 (.04)
Attention to New (W1)	-.10 (.06)#	.05 (.04)
Constant	.51 (.40)	.30 (.31)
R^2	.42	.45
F Statistic (df)	22.29 (14, 439)	24.13 (15, 438)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
#$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed). $N = 454$.

The PCP-Sharing Efficacy Process

To test the PCP-sharing efficacy process, I use Data 1 and 2. I first test H5 through H7 using Data 1.

Results from Data 1

H5 predicted that PCP would be positively associated with information-sharing efficacy. To test H5, I specified a regression model in which W1 PCP and W1 information-sharing efficacy predict W2 information-sharing efficacy. Socio-demographics and the pandemic context variables were included as a control:

Information-Sharing Efficacy (W2) = b_0 + b_1 PCP (W1) + b_2 Information-Sharing Efficacy (W1) + b_3 age + b_4 gender + b_5 education + b_6 social distance (W1) + b_7 attention to news (W1) + ε (Model 6)

As shown in Table VII.4. (model 6), an OLS regression indicated that there was a *marginally* significant relationship between PCP (W1) and information-sharing efficacy (W2), b = .09 (.05), p = .07. Given that p-value greater than .05 is traditionally considered as not statistically significant, H5 was not supported.

Table VII.4. Regression Models Predicting Information-Sharing Efficacy and News Sharing

	Information-Sharing Efficacy (W2)	News Sharing (W2)
Predictors	Model 6	Model 7
PCP (W1)	.09 (.05)$^{\#}$	.05 (.04)
Information-Sharing Efficacy (W1)	.57 (.05)***	.07 (.04)
News Sharing (W1)	-	.44 (.04)***
Socio-Demographics		
Age	-.01 (.00)*	.00 (.00)
Gender	.10 (.10)	-.13 (.09)
Education	.05 (.04)	-.02 (.03)
Control Variables		
Political Interest (W1)	-	.03 (.04)
News Media Use (W1)	-	.03 (.06)
Social Media News Use (W1)	-	.06 (.03)*
Opinion Leadership (W1)	-	.02 (.04)
POB (W1)	-	.07 (.05)
Network Homogeneity (W1)	-	.00 (.06)
Pandemic Context		
Social Distance (W1)	-.01 (.04)	-.01 (.04)
Attention to New (W1)	.05 (.04)	.04 (.04)
Constant	1.22 (.34)***	.31 (.32)
R^2	.43	.45
F Statistic (*df*)	47.891 (7,446)	25.33 (14, 439)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
$^{\#}p < .10$, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$ (two-tailed). $N = 454$.

Next, H6 predicted that information-sharing efficacy would be positively associated with news sharing. To test H6, I specified a model that includes W1 information-sharing efficacy, W1

news sharing, socio-demographics, and pandemic context variables as the predictors of W2 news sharing. To assess the impact of information-sharing efficacy above and beyond known factors for news sharing, I also included the same set of control variables used in the previous models for news sharing. The following model was thus specified:

News Sharing (W2) = b_0 + b_1 Information-sharing efficacy (W1) + b_2 PCP (W1) + b_3 New Sharing (W1) + b_4 age + b_5 gender + b_6 education + b_7 political interest (W1) + b_8 news media use (W1) + b_9 social media news use (W1) + b_{10} opinion leadership (W1) + b_{11} POB (W1) + b_{12} network homogeneity (W1) + b_{13} social distance (W1) + b_{14} attention to news (W1) + ε (Model 7)

An OLS regression indicated that there was no statistically significant relationship between information-sharing efficacy (W1) and news sharing (W2), b = .07 (.04), p = .12 (Table VII.4., model 7), therefore H6 was not supported.

Finally, H7 predicted that PCP would be positively associated with news sharing through information-sharing efficacy. To test H7, I first specified two regression models that respectively predict information-sharing efficacy (W2) and news sharing (W2) using the same set of predictors and control variables:

Information-Sharing Efficacy (W2) = b_0 + b_1 PCP (W1) + b_2 Information-Sharing Efficacy (W1) + b_3 News Sharing (W1) + b_4 age + b_5 gender + b_6 education + b_7 political interest (W1) + b_8 news media use (W1) + b_9 social media news use (W1) + b_{10} opinion

leadership (W1) + b_{11} POB (W1) + b_{12} network homogeneity (W1) + b_{13} social distance (W1) + b_{14} attention to news (W1) + ε (Model 8)

News Sharing (W2) = b_0 + b_1 PCP (W1) + b_2 Information-Sharing Efficacy (W1) + b_3 Information-Sharing Efficacy (W2) + b_4 News Sharing (W1) + b_5 age + b_6 gender + b_7 education + b_8 political interest (W1) + b_9 news media use (W1) + b_{10} social media news use (W1) + b_{11} opinion leadership (W1) + b_{12} POB (W1) + b_{13} network homogeneity (W1) + b_{14} social distance (W1) + b_{15} attention to news (W1) + ε (Model 9)

I then conducted a mediation test using Model 4 of PROCESS macro which utilizes models 8 and 9. The mediation test did *not* show a significant indirect effect between PCP (W1) and new sharing (W2) through information-sharing efficacy (W2), point estimate = .01, *SE* = .01, 95% *CI* [-.00, .03]. Thus, H7 was not supported. The summary of regression analyses used in the mediation test (model 8 and 9) appears in Table VII.5.

Table VII.5. Summary of Regression Models Used in the Information-Sharing Efficacy Mediation Test (Data 1)

	Information-Sharing Efficacy (W2)	News Sharing (W2)
Predictors & Mediator	Model 8	Model 9
PCP (W1)	.07 (.05)	.04 (.04)
Information-Sharing Efficacy (W1)	.55 (.05)***	.00 (.05)
News Sharing (W1)	.02 (.05)	.44 (.04)***
Information-Sharing Efficacy (W2)	-	.11 (.04)**
Socio-Demographics		
Age	-.01 (.00)#	.00 (.00)
Gender	.12 (.11)	-.15 (.09)
Education	.03 (.04)	-.02 (.03)
Control Variables		
Political Interest (W1)	.09 (.05)#	.02 (.04)
News Media Use (W1)	.02 (.07)	.03 (.06)
Social Media News Use (W1)	.02 (.03)	.06 (.03)*
Opinion Leadership (W1)	-.02 (.05)	.02 (.04)
POB (W1)	.04 (.06)	.06 (.05)
Network Homogeneity (W1)	.00 (.07)	.00 (.06)
Pandemic Context		
Social Distance (W1)	-.00 (.04)	.00 (.04)
Attention to New (W1)	-.02 (.05)	.04 (.04)
Constant	1.02 (.37)	.19 (.32)
R^2	.44	.46
F Statistic (df)	24.35 (14,439)	24.56 (15, 438)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
#$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed). $N = 454$.

Results from Data 2

Prior to the hypothesis-testing, an analysis of variance (ANOVA) was conducted to explore whether there is an interaction effect between PCP and information-sharing efficacy on the dependent variable. The main effects of these variables are the focal relationships in the mediation model (H7) therefore, it is necessary to check whether these variables are related in any unanticipated way. An ANOVA showed no significant interaction effect between PCP and information-sharing efficacy on the dependent variable, news sharing intent (Table VII.6.). This suggests that main effect of information-sharing efficacy on news sharing intent is not contingent on PCP and vice versa.

Table VII.6. ANOVA for News Sharing Intent with PCP and Information-Sharing Efficacy as Independent Variables

Variables	*df*	*MS*	*F*	*p*	η_p^2
Permanently Connected Perception (PCP)	1	.567	.395	.531	.00
Information-Sharing Efficacy	36	7.071	4.920	.000***	.464
PCP X Information-Sharing Efficacy	27	1.464	1.019	.445	.118
Error	205	1.437			

Note. MS: Mean square, η_p^2: partial eta square, $^{*}p < .05$, $^{**}p < .01$, and $^{***}p < .001$. $N = 270$.

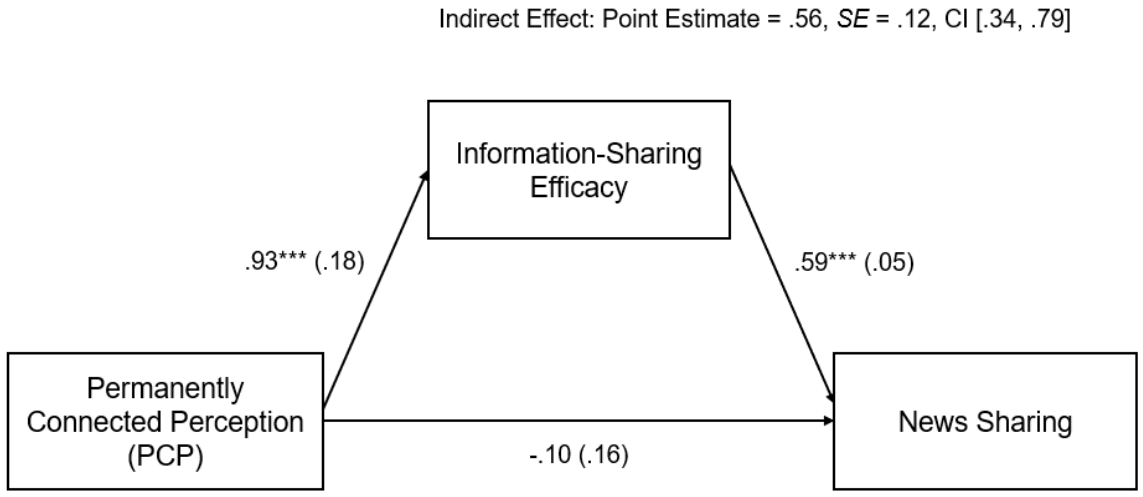
To test H5 which predicted a positive relationship between PCP and information-sharing efficacy, I conducted a *t*-test with PCP as the independent factor and information-sharing efficacy as the criterion variable. A *t*-test indicated that the PCP conditions (high vs. low) significantly differed in information-sharing efficacy, t (237.07) = -5.32; $p < .001$ (two-tailed). This suggests that participants in the high PCP condition reported a higher level of information-

sharing efficacy (*M* = 4.92, *SD* = 1.15) than those in the low PCP condition (*M* = 3.98, *SD* = 1.68). Thus, H5 was supported.

Next, H6 predicted that there would be a positive relationship between information-sharing efficacy and news sharing. I conducted an OLS regression with information-sharing efficacy as the independent variable and news sharing-intent as the dependent variable. The regression analysis indicated that information-sharing efficacy was positively associated with news-sharing intent, $b = .58$ (.05), $p < .001$. H6 was therefore supported.

To test H7 which predicted an indirect effect of PCP on news sharing through information-sharing efficacy, I conducted a mediation test using Model 4 of PROCESS macro. Consistent with H7, a significant indirect effect was found for new sharing intent, point estimate = .56, *SE* = .12, and 95% *CI* [.34, .79]. Thus, H7 was supported. The summary of path coefficients in the mediation model appears in Figure VII.1.

Figure VII.1. Path Coefficients from Information-Sharing Efficacy Mediation Tests (Data 2)



Note: Unstandardized coefficients reported. Standard errors (*SE*) in parentheses. CI = 95% confidence interval
*** $p < .001$ (two-tailed). $N = 270$.

The Conditioning Influence of Political Interest

H8 predicted that the impact of information-sharing efficacy on news sharing would be stronger among individuals with higher levels of political interest. Using Data 1, I tested whether political interest moderates the relationship between information-sharing efficacy and news sharing. As noted earlier, I used the two-step procedure (Aiken & West, 1991; Berry et al., 2012; Kingsley et al., 2017) in examining the interaction effect.

I first specified a lagged dependent-variable regression model using the two waves of the panel survey data. Building on model 7 above, I specified a new model (Model 10) that includes W1 information-sharing efficacy, W1 news sharing, and control variables (W1) as the predictors and W2 new sharing as the criterion variable. An interaction term for information-sharing efficacy (W1) and political interest (W1) was added in the new model.

I then conducted a moderation test using Model 1 of PROCESS macro. The moderation test indicated a significant interaction effect for political interest and information-sharing efficacy, $b = .04$ (.02), $p < .05$ (Table VII.7., Model 10). This suggests that marginal relationships between information-sharing efficacy and political interest (i.e., regression slopes) across different levels of political interest were discernibly different from one another.

To further probe the nature of this interaction, I used the "pick-a-point approach" (Hayes, 2013) and examined whether the marginal relationship between information-sharing efficacy and news sharing at three different levels of political interest (−1 *SD* mean, mean, and +1 *SD* mean) were statistically different from zero, respectively.

Table VII.7. Summary of Regression Models Used in Political Interest Moderation Tests

	News Sharing (W2)	Information-Sharing Efficacy (W2)	News Sharing (W2)
Predictors & Mediator	Model 10	Model 11	Model 12
PCP (W1)	.04 (.04)	.08 (.05)	.04 (.04)
Information Sharing Efficacy (W1)	-.13 (.10)	.55 (.05)***	.00 (.05)
News Sharing (W1)	.44 (.04)***	.01 (.05)	.44 (.04)***
Information-Sharing Efficacy (W2)	-	-	-.02 (.09)
Interaction			
Information-Sharing Efficacy (W1) X Political Interest (W1)	.04 (.02)*	-	-
Information-Sharing Efficacy (W2) X Political Interest (W1)	-	-	.03 (.02)#
Socio-Demographics			
Age	.00 (.00)	-.01 (.00)#	.00 (.00)
Gender	-.13 (.09)	.10 (.11)	-.14 (.09)
Education	-.01 (.03)	.04 (.04)	-.02 (.03)
Control Variables			
Political Interest (W1)	-.13 (.08)	-	-.09 (.08)
News Media Use (W1)	.02 (.06)	.03 (.07)	.02 (.06)
Social Media News Use (W1)	.06 (.03)*	.03 (.03)	.06 (.03)*
Opinion Leadership (W1)	.02 (.04)	.01 (.05)	.02 (.04)
POB (W1)	.06 (.05)	.03 (.06)	.06 (.05)
Network Homogeneity (W1)	.01 (.06)	.04 (.06)	.00 (.06)
Pandemic Context			
Social Distance (W1)	.00 (.04)	-.01 (.04)	.00 (.04)
Attention to New (W1)	.03 (.04)	.02 (.05)	.04 (.04)
Constant	1.07 (.46)*	1.04 (.37)**	.69 (.43)
R^2	.45	.43	.46
F Statistic (df)	24.18 (15, 438)	25.81 (13,440)	23.30 (16, 437)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
#$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed). $N = 454$.

As shown in Table VII.8., the association between information-sharing efficacy (W1) and news sharing (W2) at each level of political interest (W1) differs in its significance level. While the relationship between information-sharing efficacy (W1) and news sharing (W2) was not significant at the lowest (-1 *SD* mean) and mean levels of political interest, there was a significant relationship at +1 *SD* mean level of political interest. This suggests that among those who perceived themselves as highly interested in politics, there was a significant association between information-sharing efficacy and news sharing over time. No such significant relationship, however, appeared to exist among those who reported the average and below levels of political interest. H8 was therefore supported.

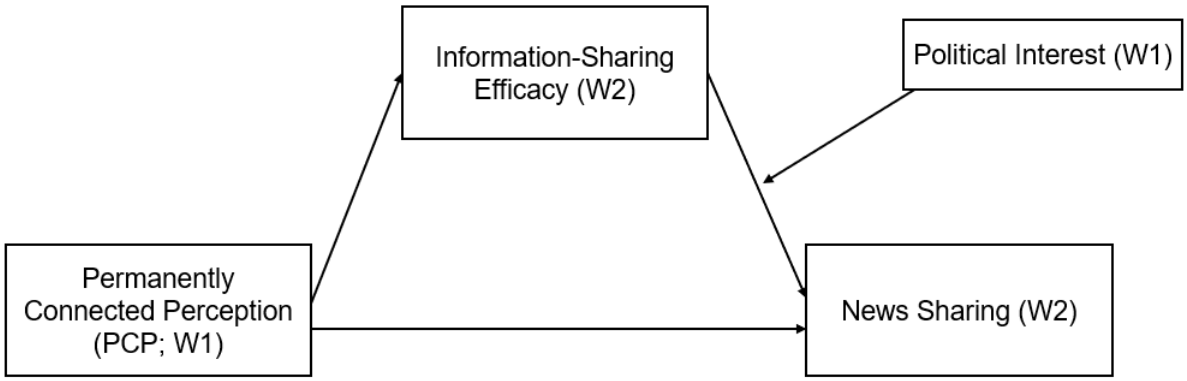
Table VII.8. Conditional Relationship between Information-Sharing Efficacy (W1) and News Sharing (W2) at Values of Political Interest (W1)

Political Interest	Coefficient (*SE*)	*t*-value	*p*-value (two-tailed)
3.13 (-1*SD*)	.00 (.05)	.04	.97
4.73 (Mean)	.07 (.04)	1.60	.11
6.34 (+1*SD*)	.13 (.05)	2.56	.01

Note: SE: Standard error. Path estimates are unstandardized coefficients.
Indirect effects based on 10,000 bootstrapping samples with 95% biased corrected confidence intervals.

Next, H9 predicted that the indirect impact of PCP on news sharing—i.e., the PCP-sharing efficacy process—would be stronger among individuals with higher levels of political interest. To test H9, I used Model 14 of PROCESS macro. Model 14 tests a moderated mediation model illustrated in Figure VII.2.

Figure VII.2. Conceptual Diagram Tested by Model 14 of PROCESS macro



To use Model 14 of PROCESS macro, I first specified two regression models that respectively estimates a) W2 information-sharing efficacy (model 11) and b) W2 news sharing (model 12) using the same sets of independent and control variables (Table VII.7., second and third column).

The interaction term for information-sharing efficacy (W2) and political interest (W1) in model 12 was *marginally* significant, $b = .03$ (.02), $p = .09$ (Table VII.7.). Using the "pick-a-point approach," I further examined the nature of the interaction. As shown in Table VII.9., the relationship between information-sharing efficacy (W2) and news sharing (W2) was significant both at mean and +1 *SD* mean level of political interest (W1). At the level of -1 *SD* mean, however, the relationship was not significant. Among respondents who were moderately and highly interested in politics, information-sharing efficacy was associated with news sharing. Among those with the lowest level of political interest, on the other hand, there was no such significant relationship.

Table VII.9. Conditional Relationship between Information-Sharing Efficacy (W2) and News Sharing (W2) at Values of Political Interest (W1)

Political Interest	Coefficient (*SE*)	*t*-value	*p*-value (two-tailed)
3.13 (-1*SD*)	.07 (.05)	1.39	.16
4.73 (Mean)	.11 (.04)	2.86	.00
6.34 (+1*SD*)	.16 (.05)	3.29	.00

Note: SE: Standard error. Path estimates are unstandardized coefficients.
Indirect effects based on 10,000 bootstrapping samples with 95% biased corrected confidence intervals.

Finally, I examined the moderated mediated relationship between PCP and news sharing (Figure VII.2.). As shown in Table VII.10., the indirect relationship between PCP (W1) and news sharing (W2) through information-sharing efficacy (W2) was not significant in any levels of political interest. This appears to be due to the *non-significant* relationship between PCP (W1) and information-sharing efficacy (W2) estimated in model 11 (Table VII.7.). Thus, H9 was not supported. The results of hypothesis tests presented in this chapter are summarized in Table VII.11.

Table VII.10. Conditional Indirect Relationship between PCP (W1) and News Sharing (W2) at Values of Political Interest (W1)

Political Interest	Coefficient (*SE*)	Lower-Bound CI	Upper-Bound CI
3.13 (-1*SD*)	.01 (.01)	-.003	.019
4.73 (Mean)	.01 (.01)	-.003	.026
6.34 (+1*SD*)	.01 (.01)	-.005	.036

Note: SE: Standard error. Path estimates are unstandardized coefficients.
Indirect effects based on 10,000 bootstrapping samples with 95% biased corrected confidence intervals.

Table VII.11. Summary of Hypothesis Test Results

Data		Hypotheses	Results
Data 1	H1	PCB → PCP	Supported
	H2	PCB → News Sharing	Not Supported
	H3	PCP → News Sharing	Supported
	H4	PCB (W1) → PCP (W1) → News Sharing (W2)	Supported
Data 1 & 2	H5	PCP → Information-Sharing Efficacy	Data 1: Not Supported Data 2: Supported
	H6	Information-Sharing Efficacy → News Sharing	Data 1: Not supported Data 2: Supported
	H7	PCP → Information-Sharing Efficacy → News Sharing	Data 1: Not Supported Data 2: Supported
Data 1	H8	Information-Sharing Efficacy X Political Interest → News Sharing	Supported
	H9	PCP → Information-Sharing Efficacy X Political Interest → News Sharing	Not Supported

CHAPTER VIII

Discussion

Discussion of the Findings

The first part of the analysis examined the relationship between permanently connected behavior (PCB) and permanently connected perception (PCP). Panel survey data analyses indicate that PCB was positively associated with PCP over time, suggesting that the "behavioral" and "psychological" dimensions of the PC phenomenon (Vorderer, Kromer, et al., 2016) are causally related. PCB allowed respondents to develop PCP or a perception that respondents were permanently co-present with their online contacts. Put differently, PCB offered a foundation for PCP.

The second part of the analysis explored the impact of PCP on news sharing. The panel data analyses indicate that PCB was positively associated with news sharing through PCP over time. The hypothesis regarding the *PCP-facilitated spill-over model* was therefore supported. Before testing this hypothesis, I tested the relationship between PCB and news sharing and found that there is no significant *direct* relationship between PCB and news sharing. Ample work has suggested "the spill-over" process whereby mundane online social interactions "spill over" to expressions in more public and political domain and motivate news sharing (e.g., Humphreys,

2018; Papacharissi, 2010). Inconsistent with findings from prior studies, the present research finds that there was *no* significant direct relationship between PCB and news sharing.

The non-significant relationship between PCB and news sharing may suggest that the *nature* of mediated social interaction—rather than its frequency—may play a more important role in motivating news sharing. In the current study, PCB was operationalized as the extent to which individuals have engaged in mediated communication in everyday-life situations. PCB therefore reflects the frequency of mediated interpersonal communication. Yet, PCB falls short in capturing a more nuanced nature of the interaction, such as the duration of each mediated communication or the overall time respondents spent for having online communication.

Prior literature suggested that measuring users' time spent on online media may be useful in predicting communication outcomes; the time spent on a medium signifies the duration of users being engaged in communications occurring on that medium. Thus, it may indicate the extent to which users were *involved in* the virtual environment. Users who are deeply involved in online communication are more likely to reap the interpersonal benefits of their communication (e.g., Ellison et al., 2007; Pang, 2018). Therefore, measuring users' time spent having online communication may be fruitful for examining the relationship between media use and communication outcomes. This hints at the possibility that PCB, the measured *frequency* of interpersonal communication, may not have been sufficient for predicting news sharing. This may partially explain why I did not find a significant relationship between PCB and news sharing.

Nevertheless, it is important to note that the *indirect* relationship between PCB and news sharing through PCP was significant. As noted, PCB was positively associated with the

development of PCP over time, and PCP positively predicted news sharing. This indicates that while there was no direct relationship between PCB and news sharing, PCP served as a significant pathway that enabled PCB to influence news sharing.

The third part of the analysis examined the mechanism through which PCP influences news sharing. To test this, I conducted two independent analyses using panel survey and experimental data, and these two analyses offered conflicting results. First, the relationship between PCP and information-sharing efficacy was significant in the experiment but *not* significant in the panel data analyses.

The null relationship found in the panel analyses raises some doubts about whether the time lag used between the two waves of the panel survey was adequate for capturing the causal relationship between PCP and information-sharing efficacy. Prior literature indicates that the lagged dependent-variable model may not be appropriate for examining a causal relationship that occurred within a very short time period (e.g., Finkel, 1995). If the time lag necessary for PCP to engender information-sharing efficacy was very short—for instance, if PCP and information-sharing efficacy existed almost *simultaneously*—and that PCP had changed significantly between waves of measurement, W1 PCP would have not predicted W2 information-sharing efficacy. This is because the relationship that occurred in W1 may have dissipated in W2. Given such a possibility, I consider the experimental design—which measured information-sharing efficacy immediately after the PCP manipulation—was more adequate for capturing the relationship between PCP and information-sharing efficacy.

Based on this possibility that there was little temporal gap between PCP and information-sharing efficacy, I conducted a post-hoc test examining the relationship between

PCP and information-sharing efficacy using W1 variables only. The analysis suggests that W1 PCP positively predicted W1 information-sharing efficacy, controlling for the same set of variables used in the panel analysis models (see Appendix C for the summary of the cross-sectional regression analysis). While this cross-sectional analysis cannot establish a temporal order between PCP and information-sharing efficacy, the experimental data compensates for this limitation, allowing me to infer the causal relationship between the two variables. In other words, the significant relationship found in the cross-sectional analysis and the results from the experiment together indicate that PCP positively predicted information-sharing efficacy.

The two sets of data also offered conflicting evidence on the relationship between information-sharing efficacy and news sharing. The experimental data showed that information-sharing efficacy is positively associated with news sharing whereas such a relationship was not significant in the panel data analyses. This null finding in the panel data analyses can be explained by the moderation test I conducted regarding political interest, which suggests that the relationship between information-sharing efficacy and news sharing was contingent on political interest.

The panel data analyses suggest that the relationship between information-sharing efficacy and news sharing existed only among respondents who reported an above-average level of political interest. Among respondents with average and below-average levels of political interest, however, there was no such relationship. This supports my hypothesis that respondents with higher levels of political interest would have a better chance of "finding" news—for instance, by consuming information or participating in political activities online—and thus have greater opportunities to share that news with others. Among individuals with a greater

"opportunity," information-sharing efficacy catalyzed news sharing. Yet, there was no such relationship among people who lacked the news-sharing opportunity.

As noted above, I found that there was a significant relationship between PCP and news sharing. The panel data analyses indicate that PCP influenced news sharing and that this relationship occurred above and beyond one's political predispositions, such as political interest or prior news consumption. The interaction I found between political interest and information-sharing efficacy however indicates a more nuanced nature of how information-sharing efficacy influences news sharing; the relationship between information-sharing efficacy and news sharing only existed among those who are highly interested in politics. In other words, the political impact of news sharing efficacy is limited to some people who are at least moderately interested in politics.

I also examined whether political interest moderates the PCP-sharing efficacy process. The panel analyses indicate that there was no significant conditional influence of political interest on the PCP-sharing efficacy process, and this was due to the null results I found regarding the relationship between PCP and information-sharing efficacy above. On the contrary, the experimental data suggest that there was a significant indirect relationship between PCP and news sharing (i.e., PCP-sharing efficacy process). This implies that if I had conducted the same set of moderated mediation tests using the experimental data, I may have found political interest conditioning the PCP-sharing efficacy process. Political interest however was not measured in the experiment thus, no additional test could be conducted. This remains a limitation of the present research.

Theoretical Implications and Future Directions

Extending the literature in CMC and mobile communication

This dissertation contributes to the existing literature in several fields in communication, including computer-mediated communication (CMC), political communication, and mobile and digital media studies. To begin with, the findings of the present study add to the research in CMC and media studies that examines the mediated co-presence. Specifically, the present study adds to the understanding of mediated co-presence and the role of media in engendering perceptions of "togetherness." A large body of work has suggested the role of electronic media and virtual environment in increasing the perceived proximity between physically distant interlocutors and thereby delivering an experience of socially rich and immersive social interaction (e.g., Biocca, 1997; Lombard & Ditton, 1997; Oh et al., 2018; Short et al., 1976; Xu et al., 2011). Building on this, this study examined whether permanent connectivity in the current media environment prompts the experience of *permanent co-presence*.

While prior research has offered in-depth accounts of how the current media environment offers capabilities and opportunities for experiencing *permanent* co-presence of one's social ties (e.g., Licoppe, 2004; Madianou, 2016; Zhao & Elesh, 2008), empirical work that substantiates such possibilities was limited. This study adds to the scholarship by offering empirical evidence that perpetual social interaction can foster permanent co-presence or perceptions of permanently being with others.

Drawing on the framework offered by Vorderer and colleagues (2016, 2018), this study also explored the behavioral and psychological aspects of permanently connected (PC)—a phenomenon in which people develop the habit of constantly being connected to others—and

extend our understanding of what it means to be in a *technical* as well as *mental* state of permanent connectedness. Drawing on multiple works on co-presence and POPC, I suggest that PC not only involves constant use of electronic media but also constantly sensing others' presence in one's daily lives.

More importantly, the current research examined whether the behavioral and psychological dimensions are causally related and found that PCB can influence the development of PCP. The POPC literature (e.g., Reinecke et al., 2018; Vorderer, Kromer, et al., 2016, 2018) offers a useful framework to conceptualize PC, which is to consider PC in terms of the two dimensions. Yet, it falls short in explicating how these two dimensions are related. I thus draw on prior literature on co-presence using it as a basis for predicting the relationship between PCB and PCP. In doing so, I extend the literature on co-presence and POPC, connecting the two bodies of literature and suggesting that people's sense of co-presence can be amplified within the contemporary POPC environment.

It is also important to note that the present research offers an operationalization of PCP. By reviewing prior literature on co-presence and related concepts, such as presence and social presence, I put together three core dimensions of co-presence—namely, perceiving the presence of others, a sense of "being together," a sense of having face-to-face communication—and adapted the prior co-presence measures to create a PCP measure. In so doing, the current study offers a way of assessing PCP.

The positive relationship I found between PCB and PCP adds an optimistic view to the ongoing debate over whether the perpetual connectivity is beneficial for users' psychological well-being. Heavy use of smartphones is often linked to negative psychological outcomes, such

as stress (LaRose et al., 2014), anxiety (Cheever et al., 2014), and negative emotions (Horwood, & Anglim, 2019). In contrast to such works suggesting the detrimental impact of a permanent connection, the current study offers an optimistic view that perpetual contact can bring about a positive psychological outcome, the feeling of togetherness.

This also offers an avenue for future research: based on the finding regarding PCP, future studies can explore how PCP influences users' psychological well-being, such as whether it increases a sense of connectedness or reduce loneliness. Such work will be particularly important in times like this in which many of our social activities are being significantly restricted due to the pandemic. Given the positive relationship between PCB and PCP the present study finds, PCB can yield other positive social or psychological outcomes that can potentially mitigate the negative states individuals experience in the event of physical isolation.

At the same time, we need to consider the negative outcome PCP may produce. For instance, PCP may induce perceptions of permanent online surveillance—an illusion that users' daily activities are being watched or tracked by their online contacts—or pressure for constantly engaging in relationship-maintenance activities. This may in turn produce a negative psychological or emotional state via inducing social anxiety, distress, or social fatigue (e.g., Maier et al., 2015). Moreover, given the conceptual overlap between PCP and online vigilance, PCP may be positively associated with online vigilance (Reinecke et al., 2018). Considering that levels of online vigilance may be positively associated with fear of missing out (e.g., Przybylski et al., 2013) or internet addiction (Müller et al., 2017), PCP may also contribute to increasing users' vulnerability to such negative states. Future research should examine these possibilities by

exploring the downstream influence of PCP on users' mental health and psychological well-being.

Extending the literature on political communication and "the spill-over"

This dissertation also extends the literature on online political expression and civic engagement by offering empirical evidence for "the spill-over," a process through which perpetual interpersonal communication motivates a political behavior, news sharing. In line with others' view on the spill-over, the findings indicate the importance of mediated (online) spaces in enabling the spill-over effect: the mediated space created by internet-connected mobile media offers a beneficial context for social connectedness as well as political participation by offering users opportunities to be involved with diverse information and events of greater public interest (Humphreys, 2018; Papacharissi, 2010). The present study also echoes findings from mobile communication literature on the role of mobile media affordances: mobile media enable users to build and maintain social ties across private, public, and semi-public environments, broadening opportunities for information to be shared beyond users' immediate social sphere (Campbell, 2020).

Prior literature on the spill-over has also suggested several pathways through which online social interaction encourages news sharing and political expression (see Lee et al., 2020). The current study adds to this scholarship by suggesting that PCP forms a new pathway of the spill-over process.

Relatedly, the present study examined the mechanism through which PCP influences news sharing, namely, the PCP-sharing efficacy process, and found that information-sharing efficacy played an important role in mediating the impact of PCP. These findings suggest that

PCP can engender awareness of an always-present audience who are capable of instantaneously receiving and responding to the sharer's message. Such awareness enhances users' sense of efficacy in their sharing behavior and consequently catalyzes news sharing. The examination of the mediating influence of information-sharing efficacy adds more nuance to our understanding of how PCP can impact news sharing.

The findings of the current study also indicate that perpetual mediated communication can fuel the spread of misinformation and fake news. The fact that information-sharing efficacy can motivate news sharing means that the sense of efficacy can at the same time increase the chance of sharing misinformation. This suggests that digital literacy campaigns and other interventional efforts regarding online misinformation would be even more important in the POPC environment. More study is needed to examine whether and, if so, how PCP and information-sharing efficacy influence sharing of various forms of political information, including misinformation.

Given that online sharing has become a common online practice for many users, it is crucial that users learn and accustom themselves to carefully discerning the validity of information before sharing it. Thus, exploring whether and, if so, how information-sharing efficacy interacts with sharers' motivations or capabilities in assessing information credibility will merit further investigation. This can help to identify how we can mitigate the potential side effect of information-sharing efficacy, which is to discourage the spread of misinformation.

Limitations

This dissertation is limited in a few ways. First, the panel survey and experimental data offered conflicting evidence regarding the PCP-sharing efficacy process. As noted above, the null relationship found in the panel analyses may have been due to the relatively long interval between the waves of measurements. Thus, the time lag set in the survey could have been better designed. Designing an appropriate lag structure for a causal effect is not an easy job because researchers are often uncertain about the length of time it should take for the independent variable to influence the dependent variable (Finkel, 1995). As one of the first studies to examine the PCP-sharing efficacy process, I hope the present study provides a guide for calibrating an appropriate leg structure for examining the PCP-sharing efficacy process.

Second, as noted earlier, political interest was not measured in the experiment therefore, I could not use the experimental data to examine the moderating effect of political interest. My survey data indicates that the relationship between information-sharing efficacy and news sharing was contingent on political interest. Triangulating this finding with the experimental data could have offered a more solid understanding of how political interest interacts with information-sharing efficacy. Future studies should therefore examine how political interest as well as other theoretically relevant political predispositions—such as political efficacy, the strength of partisanship—condition the impact of information-sharing efficacy on news sharing.

Third, the findings of the experiment may be limited in their external validity and therefore need to be interpreted with caution. For instance, to manipulate PCP in the experiment, I asked participants to *estimate* their levels of PCP in a hypothetical situation described in a scenario. While this manipulation successfully led participants to report different levels of PCP,

it only indicates that participants' *estimated* PCP differed in the two experimental conditions. Put differently, the manipulated PCP does not necessarily reflect participants' true PCP.

Moreover, in the experiment, I measured participant's *intent* to share news as the criterion variable. Intention itself does not necessarily lead to actual behavior and people can either under- or overestimate their likelihood of engaging in a behavior. Together these possibilities make it unclear whether the relationships found in the experiment would occur in the real world, to a similar degree, because participants could have either over- or underestimated information-sharing efficacy and their news-sharing intention in the experiment.

The lack of external validity itself however is not a fundamental flaw of the present study and I do not think that such a bias in participants' estimation has occurred systematically across the sample. Nevertheless, more study is needed to better examine the real-world implications of the PCP-sharing efficacy process. To this end, a more advanced experimental design should be devised so that participants' PCP can be directly manipulated.

Finally, the PCP manipulation stimuli used in the current study required participants to be social media users therefore, the experiment was confined to a social media context. Thus, it is unclear whether the findings of the experiment can be generalized to other contexts in the current media environment, such as instant messaging platforms. Relatedly, the current study focused on a single national context. It is important to note that norms and expectations of social connectedness and online connectivity can vary across cultures and societies. Additional work is therefore needed to examine whether the findings of the present study are generalizable to other cultural contexts as well as to a different media environment.

In conclusion, PC has occurred only recently with the advent of the smartphone era, and our understanding of this new phenomenon is still nascent. While researchers are beginning to understand how POPC impacts various domains of our lives, research examining its political implications is scarce. This dissertation is one of the first that explored the political implications of permanent connectedness. Given the growing significance of PC, it is important that future research further investigates how permanent connectedness affects the ways in which people perceive their social connection and participate in public life.

APPENDICES

APPENDIX A

Table A.1. Zero-Order Correlations Among All Measured Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Gender	-.01														
3. Education	.36**	-.21**													
4. PCB	-.33**	-.01	-.04												
5. PCP	-.15**	.05	-.05	.35**											
6. Information-Sharing Efficacy	-.15**	.05	-.04	.33**	.64**										
7. News Sharing	-.16**	-.09	.02	.45**	.34**	.34**									
8. Political Interest	.12**	-.06	.23**	.11*	.21**	.25**	.29**								
9. News Media Use	.13**	-.14**	.23**	.20**	.07	.08	.40**	.44**							
10. SM Use for News	-.18**	.01	-.02	.31**	.26**	.31**	.40**	.18**	.18**						
11. Opinion Leadership	-.11*	-.03	.07	.33**	.35**	.39**	.48**	.54**	.33**	.25**					
12. POB	-.37**	-.01	-.02	.78**	.26**	.29**	.40**	.07	.14**	.30**	.23**				
13. Network Political Homogeneity	.09	.05	.15**	.16**	.23**	.29**	.33**	.47**	.32**	.19**	.35**	.16**			
14. Pandemic Context-Social Distance	.11*	.16**	.09	-.05	-.06	.10*	.03	.26**	.21**	.08	.14**	-.04	.16**		
15. Pandemic Context-Attention to News	.14**	.03	.14**	.12**	.17**	.24**	.27**	.62**	.44**	.19**	.43**	.08	.36**	.54**	

**. $p < .01$, *. $p < .05$ (two-tailed). $N = 807$.

APPENDIX B

Table B.1. Regression Analysis Predicting Perceived Responsiveness of Online Contacts with PCP

Predictors	Perceived Responsiveness of Online Contacts (W1)
Permanently Connected Perception (PCP; W1)	.20 (.02)***
Socio-Demographics	
Age	.00 (.00)
Gender	.17 (.06)**
Education	.03 (.02)
Control Variables	
Permanently Connected Behavior (PCB; W1)	.13 (.04)***
Opinion Leadership (W1)	.17 (.03)***
Constant	.73 (.20)***
R^2	.26
F Statistic (df)	43.93 (6, 757)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
** $p < .01$, *** $p < .001$ (two-tailed). $N = 807$.

APPENDIX C

Table C.1. Regression Model Predicting Information-Sharing Efficacy (Cross-Sectional)

	Information-Sharing Efficacy (W1)
Predictors	Model 14
Permanently Connected Perception (PCP; W1)	.59 (.04)***
Socio-Demographics	
Age	-.01 (.00)*
Gender	.02 (.10)
Education	-.00 (.04)
Pandemic Context	
Social Distance (W1)	.08 (.05)*
Attention to New (W1)	.09 (.04)*
Constant	1.23 (.33)***
R^2	.44
F Statistic (df)	59.26 (6, 447)

Note: Unstandardized coefficients reported. Standard errors in parentheses.
*$p < .05$, ***$p < .001$ (two-tailed). $N = 454$.

BIBLIOGRAPHY

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. SAGE.

Al-Ghaith, W. (2015). Understanding social network usage: Impact of co-presence, intimacy, and immediacy. *International Journal of Advanced Computer Science and Applications, 6*(8), 99-111. https://doi.org/10.14569/IJACSA.2015.060813

Bakardjieva, M. (2009). Subactivism: Lifeworld and politics in the age of the Internet. *The Information Society, 25*(2), 91-104. https://doi.org/10.1080/01972240802701627

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral changes. *Psychological Review, 84*, 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147. http://dx.doi.org/10.1037/0003-066X.37.2.122

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. New York: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Barnidge, M., Ardèvol-Abreu, A., & de Zúñiga, H. G. (2018). Content-expressive behavior and ideological extremity: An examination of the roles of emotional intelligence and information network heterogeneity. *New Media & Society, 20*(2), 815-834. https://doi.org/10.1177/1461444816675183

Barnidge, M., & Rojas, H. (2014). Hostile media perceptions, presumed media influence, and political talk: Expanding the corrective action hypothesis. *International Journal of Public Opinion Research, 26*(2), 135-156. https://doi.org/10.1093/ijpor/edt032

Bayer, J. B., Campbell, S. W., & Ling, R. (2016). Connection cues: Activating the norms and habits of social connectedness. *Communication Theory, 26,* 128-149. https://doi.org/10.1111/comt.12090

Berger, C. R., & Calabrese, R. J. (1975). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x

Berry, W. D., Golder, M., & Milton, D. (2012). Improving tests of theories positing interaction. *The Journal of Politics, 74*(3), 653–671. https://doi.org/10.1017/s0022381612000199

Biocca, F. (1997). The cyborg's dilemma: progressive embodiment in virtual environments. *Journal of Computer-Mediated Communication, 3*(2). https://doi.org/10.1111/j.1083-6101.1997.tb00070.x

Biocca, F., Harms, C., & Burgoon, J. K. (2003). Toward a more robust theory and measure of social presence: Review and suggested criteria. *Presence: Teleoperators and Virtual Environments, 12*(5), 456-480. https://doi.org/10.1162/105474603322761270

Boulianne, S. (2015). Social media use and participation: A meta-analysis of current research. *Information, Communication & Society, 18*(5), 524-538. https://doi.org/10.1080/1369118X.2015.1008542

boyd, d. (2010). Social network sites as networked publics: Affordances, dynamics, and implications. In Z. Papacharissi (Ed.), *Networked self: Identity, community, and culture on social network sites*. (pp. 39-58). New York, NY: Routledge.

Burke, M., & Kraut, R. (2014). Growing closer on Facebook: Changes in tie strength through social network site use. *ACM CHI 2014: Conference on Human Factors in Computing Systems.*

Chamber, D. (2013). Social media and personal relationships: Online intimacies and networked friendship. London: Palgrave Macmillan.

Campbell, S. W. (2020). Cutting the cord: Social and scholarly revolutions as CMC goes mobile. *Journal of Computer-Mediated Communication, 25*(1), 101-110. https://doi.org/10.1093/jcmc/zmz021

Campbell, S. W., & Kwak, N. (2011). Mobile communication and strong network ties: Shrinking or expanding spheres of public discourse? *New Media & Society, 14*(2) 262-280. https://doi.org/ 10.1177/1461444811411676

Cappella, J. N., Kim, H. S., & Albarracín, D. (2015). Selection and transmission processes for information in the emerging media environment: Psychological motives and message characteristics. *Media Psychology 18*(3), 396-424. https://doi.org/10.1080/15213269.2014.941112

Cheever, N. A., Rosen, L.D., Carrier, L.M., Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior, 37*, 290-297. https://doi-org.proxy.lib.umich.edu/10.1016/j.chb.2014.05.002

Davis, J. L., & Chouinard, J. B. (2016). Theorizing affordances: From request to refuse. *Bulletin of Science, Technology & Society, 36*(4), 241-248. https://doi.org/10.1177/0270467617714944

Ekström, M., & Östman, J. (2013). Information, interaction, and creative production: The effects of three forms of Internet use on youth democratic engagement. *Communication Research, 2*(6), 796-818. https://doi.org/10.1177/0093650213476295

Ellison, N. B. & boyd, d. (2013). Sociality through Social Network Sites. In W. H. Dutton (Ed.), *The Oxford Handbook of Internet Studies*. Oxford: Oxford University Press, pp. 151-172.

Ellison, N., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook friends: "Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168. https://doi.org/10.1111/j.1083-6101.2007.00367.x

Ellison, N. B. & Vitak, J. (2015). Social network site affordances and their relationship to social capital processes. In S. S. Sundar (Ed.), *The handbook of the psychology of communication technology*. (pp. 203-227). Hoboken, NJ: Wiley-Blackwell.

Evans, S. K., Pearce, K. E., Vitak, J., & Treem, J. W. (2017). Explicating affordances: a conceptual framework for understanding affordances in communication research. *Journal of Computer-Mediated Communication, 22*(1), 35-52. https://doi.org/10.1111/jcc4.12180

Eveland, W. P., & Thomson T. (2006). Is it talking, thinking, or both? A lagged dependent variable model of discussion effects on political knowledge. *Journal of Communication, 56*, 523-542.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Finkel, S. E. (1995). *Causal analysis with panel data*. Thousand Oaks, CA: Sage.

Fulk, J. (1993). Social construction of communication technology. *The Academy of Management Journal, 36*(5), 921-950. http://www.jstor.org/stable/256641

Giddens, A. (1984). *The constitution of society: Outline of the theory of structuration*. University of California Press, Berkeley.

Gil de Zúñiga, H., Jung, N., Valenzuela, S. (2012). Social media use for news and individuals' social capital, civic engagement, and political participation. *Journal of Computer-Mediated Communication, 17*(3), 319-336. https://doi.org/10.1111/j.1083-6101.2012.01574.x

Gil de Zúñiga, H., Molyneux, L., & Zheng, P. (2014). Social media, political expression, and political participation: Panel analysis of lagged and concurrent relationships. *Journal of Communication, 64*(4), 612-634. https://doi.org/10.1111/jcom.12103

Gil de Zúñiga, H., Weeks, B., & Ardèvol-Abreu, A. (2017). Effects of the news-finds-me perception in communication: Social media use implications for news seeking and learning about politics. *Journal of Computer-Mediated Communication*, 22, 105-. https://doi.org/10.1111/jcc4.12185

Gnambs, T., & Batinic, B. (2011). Evaluation of measurement precision with Rasch-type models: The case of the short Generalized Opinion Leadership Scale. *Personality and Individual Differences, 50*(1), 53-58. https://doi.org/10.1016/j.paid.2010.08.021

Goh, D., Ling, R., Huang, L., & Liew, D. (2017). News sharing as reciprocal exchanges in social cohesion maintenance. *Information, Communication, & Society, 22*(8), 1128-1144. https://doi.org/10.1080/1369118X.2017.1406973

Goffman, E. (1966). *Behavior in public places*. New York: The Free Press.

Hasell, A., & Weeks, B.E. (2016). Partisan provocation: The role of partisan news use and emotional responses in political information sharing in social media. *Human Communication Research, 42*(4), 641-661. https://doi.org/10.1111/hcre.12092

Harper, R. (2010). *Texture*. Cambridge, MA: MIT Press.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: The Guilford Press.

Horwood, S., & Anglim, J. (2019). Problematic smartphone usage and subjective and psychological well-being. *Computers in Human Behavior*, 97, 44-50. https://doi.org/10.1016/j.chb.2019.02.028

Humphreys, L. (2018). *The qualified self: Social media and the accounting of everyday life*. Cambridge, MA: MIT Press.

Ihm, J., & Kim, E. M. (2018). The hidden side of news diffusion: Understanding online news sharing as an interpersonal behavior. *New Media & Society*, *20*(11), 4346-4365. https://doi.org/10.1177/1461444818772847

Katz, E., & Lazarsfeld, F. P. (1955). *Personal influence: the part played by people in the flow of mass communications*. Glencoe, IL: The Free Press.

Karaoglan Yilmaz, F. G. (2017). Social presence and transactional distance as an antecedent to knowledge sharing in virtual learning communities. *Journal of Educational Computing Research, 55*(6), 844-864. https://doi.org/10.1177/0735633116688319

Kim, D. H., & Ellison, N. B. (2021). From observation on social media to offline political participation: The social media affordances approach. New Media & Society. https://doi.org/10.1177/1461444821998346

Kim, D. H., & Jones-Jang, S. M., & Kenski, K. (2020). Why do people share political information on social media?. *Digital Journalism.* https://doi.org/10.1080/21670811.2020.1827966

Kingsley, A. F., Noordewier, T. G., & Vanden Bergh, R. G. (2017). Overstating and understating interaction results in international business research. *Journal of World Business, 52*(2), 286-295. https://doi.org/10.1016/j.jwb.2016.12.010

Klimmt, C., Hefner, D., Reinecke, L, Rieger, D., & Vorderer, P. (2018). The permanently online and permanently connected mind: Mapping the cognitive structures behind mobile internet use. In P. Vorderer, D. Hefner, L. Reinecke, & C. Klimmt (Eds.), *Permanently online, permanently connected: Living and Communicating in a POPC world*. (pp. 18-28). New York, NY: Routledge.

Kümpel, A. S., Karnowski, V., & Keyling, T. (2015). News sharing in social media: A review of current research on news sharing users, content, and networks. *Social Media + Society 1*(2), 1-14. https://doi.org/10.1177/2056305115610141

Kwak, N., Lane, D., Weeks, B., Kim, D. H., Lee, S. S., & Bachleda, S. (2018). Perceptions of social media for politics: Testing the slacktivism hypothesis. *Human Communication Research, 44*(2), 197-221. https://doi.org/10.1093/hcr/hqx008

LaRose, R., Connolly, R., Lee, H., Li, K., & Hales, K. D. (2014). Connection overload? A cross cultural study of the consequences of social media connection. *Information Systems Management, 31*(1), 59-73. https://doi.org/10.1080/10580530.2014.854097

Lane, D. S., Lee, S. S., Liang, F., Kim, D. H., Shen, L., Weeks, B. E., Kwak, N. (2019). Social media expression and the political self. *Journal of Communication, 69*(1), 49-72. https://doi.org/10.1093/joc/jqy064

Lee, K. M. (2004). Presence, explicated. *Communication Theory*, 14(1), 27-50. https://doi.org/10.1111/j.1468-2885.2004.tb00302.x

Lee, C. S., & Ma, L. (2012). News sharing in social media: The effect of gratifications and prior experience. *Computers in Human Behavior, 28*(2), 331-339. https://doi.org/10.1016/j.chb.2011.10.002

Lee, S. S., Lane, D., Kwak, N. (2020). When social media get political: How perceptions of open-mindedness influence political expression on Facebook. *Social Media + Society, 6*(2). https://doi.org/10.1177/2056305120919382

Licoppe, C. (2004). "Connected presence": The emergence of a new repertoire for managing social relationships in a changing communication technoscape. *Environment and planning D: Society and Space, 22*(1), 135-156. https://doi.org/10.1068/d323t

Lin, X., Sarker, S., & Featherman, M. (2019). Users' psychological perceptions of information sharing in the context of social media: A comprehensive model. *International Journal of Electronic Commerce, 23*(4), 453-491. https://doi.org/10.1080/10864415.2019.1655210

Litt, E. (2012). Knock, knock. Who's there? The imagined audience. *Journal of Broadcasting & Electronic Media, 56*(3), 330-345. https://doi.org/10.1080/08838151.2012.705195

Litt, E. & Hargittai, E. (2016). The imagined audience on social network sites. *Social Media + Society*. https://doi.org/10.1177/2056305116633482

Lombard, M., & Ditton, T. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communications, 3*(2). https://doi.org/10.1111/j.1083-6101.1997.tb00072.x

Lombard, M., Lee, S., Sun, W., Xu, K., & Yang, H. (2017). Presence theory. In C. Hoffner (Ed.), *International Encyclopedia of Media Effects,* 169-188. NJ: John Wiley & Sons

Ma, L., Lee, C. S., & Goh, D. H. (2014). Understanding news sharing in social media: An explanation from the diffusion of innovations theory. *Online Information Review, 38*(5), 598-615. https://doi.org/10.1108/OIR-10-2013-0239

McLeod, P. L., Baron, R. S., Marti, M. W., & Yoon, K. (1997). The eyes have it: Minority influence in face-to-face and computer-mediated group discussion. *Journal of Applied Psychology, 82*(5), 706-718. https://doi.org/10.1037/0021-9010.82.5.706

Madianou, M. (2016). Ambient co-presence: Transnational family practices in polymedia environments. *Global Networks, 16*(2), 183-201. https://doi.org/10.1111/glob.12105

Maier, C., Laumer, S., Eckhardt, A., & Weitzel, T. (2015). Giving too much social support: Social overload on social networking sites. *European Journal of Information Systems, 24*(5), 447-464. https://doi.org/10.1057/ejis.2014.3

Marwick, A. E., & boyd, d. (2011). I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience. *New Media & Society, 13*(1), 114-133. https://doi.org/10.1177/1461444810365313

Morey, A. C., Eveland, W. P., Hutchens, M. J. (2012). The "who" matters: Types of interpersonal relationships and avoidance of political disagreement. *Political Communication, 29*(1), 86-103. https://doi.org/10.1080/10584609.2011.641070

Muhlbach, L., Bocker, M., & Prussog, A. (1995). Telepresence in videocommunications: A study on stereoscopy and individual eye contact. *Human Factors, 37*(2), 290-305. https://doi.org/10.1518/001872095779064582

Müller, K. W., Dreier, M., Wölfling, K. (2017). Excessive and addictive use of the Internet: Prevalence, related contents, predictors, and psychological consequences. In: Reinecke L, Oliver M. B., eds. *The Routledge handbook of media use and well-being: International perspectives on theory and research on positive media effects*. New York: Routledge. pp. 223–236.

Nagy, P., & Neff, G. (2015). Imagined affordance: Reconstructing a keyword for communication theory. *Social Media + Society.* https://doi.org/10.1177/2056305115603385

Neubaum, G., & Krämer, N. C. (2017). Opinion climates in social media: Blending mass and interpersonal communication. *Human Communication Research, 43*(4), 464-476. https://doi.org/10.1111/hcre.12118

Noelle-Neumann, E. (1983). *Spiegel Dokumentation: Persönlichkeitsstärke* [Personality strength]. Hamburg, Germany: Spiegel-Verlag.

Oh, S.Y., Bailenson, J.N., & Welch, G.F. (2018). A systematic review of social presence: Definition, antecedents, and implications. *Frontiers in Robotics and AI, 5*(14), 1-34. https://doi.org/10.3389/frobt.2018.00114

O'Sullivan, P. B., & Carr, C. T. (2018). Masspersonal communication: A model bridging the mass-interpersonal divide. *New Media & Society, 20*(3), 1161-1180. https://doi.org/10.1177/1461444816686104

Pang, H. (2018). How does time spent on WeChat bolster subjective well-being through social integration and social capital?. *Telematics and Informatics*, 35(8), 2147-2156. https://doi.org/10.1016/j.tele.2018.07.015

Papacharissi, Z. (2010). *A private sphere: Democracy in a digital age*. Cambridge, England: Polity Press.

Prior, M. (2010). You've either got it or you don't? The stability of political interest over the life cycle. *The Journal of Politics, 72*(3), 747-766. https://doi.org/doi:10.1017/S0022381610000149

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior, 29*(4), 1841-1848. http://dx.doi.org/10.1016/j.chb.2013.02.014.

Reinecke, L., Klimmt, C., Meier, A., Reich, S., Hefner, D., Knop-Huelss, K., et al. (2018). Permanently online and permanently connected: Development and validation of the Online Vigilance Scale. *PLoS ONE, 13*(10), e0205384. https://doi.org/10.1371/journal.pone.0205384

Rogers, E. M. (2003). *Diffusion of Innovations*. New York, NY: Free Press.

Rubin, A. M., & Perse, E. M. (1987). Audience activity and television news gratifications, *Communication Research 14*(1), 58-84. https://doi.org/10.1177/009365087014001004

Rudat, A., Buder, J., & Hesse, F. W. (2014). Audience design in Twitter: Retweeting behavior between informational value and followers' interests. *Computers in Human Behavior, 35*, 132-139. https://doi.org/10.1016/j.chb.2014.03.006

Shah, D. V., Cho, J., Eveland, W. P., & Kwak, N. (2005). Information and expression in a digital age modeling Internet effects on civic participation. *Communication Research, 32*(5), 531-565. https://doi.org/10.1177/0093650205279209.

Shah, D. V., Kwak, N., & Holbert, R. L. (2001). "Connecting" and "disconnecting" with civic life: Patterns of Internet use and the production of social capital. *Political Communication, 18*(2), 141-162. http://dx.doi.org/10.1080/105846001750322952.

Shen, K. N., & Khalifa, M. (2008). Exploring multidimensional conceptualization of social presence in the context of online communities. *International Journal of Human Computer Interaction, 24*(7), 722-748. https://doi.org/10.1080/10447310802335789

Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. New York: John Wiley & Sons.

Skoric, M. M., Zhu, Q., Goh, D., & Pang, N. (2016). Social media and citizen engagement: A meta-analytic review. *New Media & Society, 18*(9), 1817-1839. https://doi.org/10.1177/1461444815616221

Strömbäck, J., Djerf-Pierre, M., & Shehata, A. (2013). The dynamics of political interest and news media consumption: A longitudinal perspective. *International Journal of Public Opinion Research, 25*(4), 414-435. https://doi.org/10.1093/ijpor/eds018

Swigger, N. (2013). The online citizen: Is social media changing citizens' beliefs about democratic values?. *Political Behavior, 35*(3), 589-603. https://doi.org/10.1007/s11109-012-9208-y

Thorson, K., Cotter, K., Medeiros, M., & Pak, C. (2021). Algorithmic inference, political interest, and exposure to news and politics on Facebook. *Information, Communication & Society, 24*(2), 183-200, https://doi.org/10.1080/1369118X.2019.1642934

Valeriani, A. & Vaccari, C. (2016). Accidental exposure to politics on social media as online participation equalizer in Germany, Italy, and the United Kingdom. *New Media & Society*, 18(9), 1857-1874. https://doi.org/10.1177/1461444815616223

Valenzuela, S., Park, N., & Kee, K. F. (2009). Is there social capital in a social network site? Facebook use and college students' life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication, 14*(4), 875-901. https://doi.org/10.1111/j.1083-6101.2009.01474.x

Velasquez, A. & Rojas, H. (2017). Political expression on social media: The role of communication competence and expected outcomes. *Social Media + Society*. https://doi.org/10.1177/2056305117696521

Vitak, J. (2012). The impact of context collapse and privacy on social network site disclosures. *Journal of Broadcasting & Electronic Media, 56*(4), 451-470. https://doi.org/10.1080/08838151.2012.732140

Vorderer, P., & Kohring, M. (2013). Permanently online: A challenge for media and communication research. *International Journal of Communication, 7*, 188-196.

Vorderer, P., Kromer, N., & Schneider, F. M. (2016). Permanently online-Permanently connected: Exploration into university students' use of social media and mobile smart devices. *Computers in Human Behavior, 63*, 694-703. https://doi.org/10.1016/j.chb.2016.05.085

Vorderer, P., Hefner, D., Reinecke, L., & Klimmt, C. (2018). *Permanently online, permanently connected: Living and communicating in a POPC world*. New York, NY: Routledge.

Vorderer, P., & Klimmt, C. (2020). The mobile user's mindset in a permanently online, permanently connected society. In R. Ling, L. Fortunati, G. Goggin, S. S. Lim, & Y. Li (Eds.), *The oxford handbook of mobile communication and society*. Oxford: Oxford University Press.

Vraga, E. K., Thorson, K., Kligler-Vilenchik, N., & Gee, E. (2015). How individual sensitivities to disagreement shape youth political expression on Facebook. *Computers in Human Behavior, 45*, 281-89. https://doi.org/10.1016/j.chb.2014.12.025

Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research. 19*(1), 52-90. https://doi.org/ 10.1177/009365092019001003

Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research. 23*(1), 3-43. https://doi.org/10.1177/009365096023001001

Weeks, B. E., Lane, D. S., Kim, D, Lee, S. S., & Kwak, N. (2017). Incidental exposure, selective exposure, and political information sharing: Integrating online exposure patterns and expression on social media. *Journal of Computer-Mediated Communication*, 22(6), 363-379. https://doi.org/10.1111/jcc4.12199

Winter, S., & Neubaum, G. (2016). Examining characteristics of opinion leaders in social media: A motivational Approach. *Social Media + Society*. https://doi.org/10.1177/2056305116665858

Wojcieszak, M., & Mutz, D. (2009). Online groups and political discourse: Do online discussion spaces facilitate exposure to political disagreement? *Journal of Communication, 59*(1), 40-56. https://doi.org/10.1111/j.1460-2466.2008.01403.x

Xu, B., Zhang, W., & Li, D. (2011). Copresence and its social-relational antecedents in computer-mediated communication: The case of instant messenger. *International Journal of Human-Computer Interaction, 27*(10), 991-1009. https://doi.org/10.1080/10447318.2011.555316

Yu, R. P. (2016). The relationship between passive and active non-political social media use and political expression on Facebook and Twitter. *Computers in Human Behavior, 58*, 413-420. https://doi.org/10.1016/j.chb.2016.01.019

Zhao, S. (2003). Toward a taxonomy of copresence. Presence: *Teleoperators and Virtual Environments, 12*(5), 445-455. https://doi.org/10.1162/105474603322761261

Zhao, S., & Elesh, D. (2008). Copresence as 'being with'. *Information, Communication & Society, 11*(4), 565-583. https://doi.org/10.1080/13691180801998995